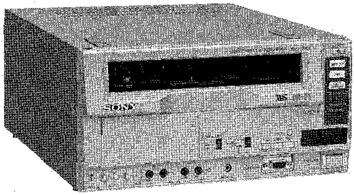
SONY®

VIDEOCASSETTE RECORDER

SVO-960P

SERVICE MANUAL

(Revised 1)



VHS

SPECIFICATIONS

System

Video signal system	CCIR standards, PAL color
Recording system	Rotary 2-head Azimuth recording, VHS standards Luminance: FM recording Color signal: converted subcarrier phase shift recording

Video

Inputs	VIDEO IN (BNC type) ×1 (with loop-through output) 1.0 Vp-p, 75 ohms (with termination switch), unbalanced, sync negative
Outputs	VIDEO OUT (BNC type) ×1 1.0 Vp-p, 75 ohms, unbalanced, sync negative
Horizontal resolution	More than 240 lines
S/N	More than 44 dB

Audio

Inputs	AUDIO IN CH-1/CH-2 NORM, Hi-Fi (phono jacks) ×1 each –10 dBs (0 dBs = 0.775 V), 47 k ohms
Outputs	AUDIO MONITOR CH-1/CH-2 (phono jacks) ×1 each –10 dBs (0 dBs = 0.775 V), 47 k ohms
Channels	4 channels Normal (CH-1/CH-2) : 2 fixed heads Hi-Fi (CH-1/CH-2) : 2 rotary heads
S/N	More than 43 dB (with Dolby NR off)
Frequency response	Normal: 50 Hz to 10 kHz Hi-Fi: 20 Hz to 20 kHz
Dynamic range	More than 90 dB (Hi-Fi)

Tape transport

Tape speed	23.39 mm/sec.
Recording time	180 minutes (with E180)
Fast forward and rewind time	Within 2.5 minutes (with E180)
Usable tape	VHS standards cassettes tapes

General

Remote control	Serial signal
Power requirements	220 to 240 V AC, 50/60 Hz
Power consumption	25 W
Storage temperature	–20°C to +60°C (–4°F to +140°F)
Operating temperature	5°C to 40°C (41°F to 104°F)
Dimensions	270 × 132 × 370 mm (w/h/d) ($10\,{}^{3}/_{4} \times 5\,{}^{1}/_{4} \times 14\,{}^{5}/_{8}$ inches) without including projecting parts and controls
Weight	7.5 kg (16 lb 9 oz)
Supplied accessories	AC power cord (1) Operating instructions (1)

Design and specifications subject to change without notice.

Recommended equipment and accessories

Audio meter SVAC-901
34-pin interface board SVBK-901
Bi-directional interface board SVBK-902
Serial controller SVRM-901
Remote controller RM-V200
Automatic cassette changer SVCC-960

Cassette holder SVAC-902
Audio head cleaner SVAC-903
Bi-directional remote control panel SVAC-904
Bi-directional remote control unit SVRM-960

TABLE OF CONTENTS

1. GENERAL DISCRIPTION

1-1. Features 1-1
1-2. Location and Function of Parts and Controls 1-2
1-3. Connections 1-5
  1-3-1. Basic Connections 1-5
  1-3-2. System Connection Example 1-6
1-4. Data Setting 1-6

2. SERVICE INFORMATION

2-1. How to remove and re-install the Externals 2-1
2-2. How to remove the Cassette Compartment (FL, Ass'y) 2-2
2-3. How to remove the Power Supply 2-2
2-4. How to service the Printed Circuit Board 2-2
  2-4-1. How to remove the VO-27 and DL-44 Boards 2-2
  2-4-2. How to remove the RP-52A Board 2-2
  2-4-3. How to remove the CP-151 Board 2-3
  2-4-4. How to open the SS-47A Board 2-3
2-5. Location of Main Parts 2-4
  2-5-1. Location of the Main Mechanical Parts/Components 2-4
  2-5-2. Location of the Printed Circuit Boards 2-6
2-6. Printed Circuit Board 2-8
2-7. Connectors 2-8
2-8. Connector Input/Output Signal 2-8
2-9. Spare Parts 2-8
2-10. How to operate the Cassette Compartment Ass'y and also the VTR without Tape 2-9
2-11. How to remove Cassette Tape when it cannot be ejected 2-10
2-12. Fixture 2-11
2-13. Test Menu 2-13
  2-13-1. Function Key Mode 2-14
  2-13-2. Data Display Mode 2-14
  2-13-3. Test Level Setting Mode 2-18
  2-13-4. Self Diagnostic Mode 2-19
  2-13-5. NOVRAM Setting Mode 2-22

3. PERIODIC CHECK AND MAINTENANCE

3-1. Maintenance After Repairs 3-1
3-2. Hours Meter 3-1
3-3. Periodic Check 3-2
3-4. Oiling 3-3
3-5. Greasing 3-4

4. REPLACEMENT OF MAJOR PART

4-1. Preparations for Replacing Parts 4-1
  4-1-1. Method of Loading and Unloading the Cassette Compartment When the Power is OFF 4-1
  4-1-2. Method of Threading and Unthreading When the Power is OFF 4-1
  4-1-3. Method of Operating the VTR without a Cassette Compartment or Cassette Tape 4-2
  4-1-4. How to get the best Engaging Phase of Gears when Replacing 4-3
4-2. Cassette Compartment (FL Ass'y) 4-5
  4-2-1. Prevention Lever 4-5
  4-2-2. Loading Motor, Worm Gear (FL), Worm Wheel (FL) and Worm Retainer 4-6
  4-2-3. Door Switching Arm 4-7
4-3. BC Roller Ass'y 4-7
4-4. Upper Drum Ass'y 4-8
4-5. Drum Ass'y 4-10
4-6. TG-1 Guide 4-11
4-7. Tension Regulator Ass'y (TG-2 Guide) and STD Ass'y 4-12
4-8. FE Head 4-14
4-9. Tape Stabilizer Ass'y (TG-4 Guide) and TG-3 Guide 4-14
4-10. Audio Head Ass'y 4-16
4-11. TG-9 Guide 4-18
4-12. Pinch Roller Block Ass'y and Elevator Cam 4-19
4-13. Press Cam Gear 4-20
4-14. RVS Arm Ass'y (RVS Guide) and RVS Cam Gear 4-21
4-15. FR Drive Gear and RVS Relay Gear 4-23
4-16. FR Gear 4-23
4-17. Reel Table Ass'y 4-24
4-18. Reel Brake Ass'y 4-25
4-19. Reel Motor 4-26
4-20. Drive Gear Ass'y 4-27
  4-20-1. Cam Motor Ass'y 4-28
  4-20-2. Relay Gear and Worm Wheel 4-29
4-21. Mode Gear Ass'y 4-29
4-22. Loading Gear (Right) Ass'y 4-30
4-23. Loading Gear (Left) Ass'y 4-31
4-24. Shuttle (Right) Ass'y 4-32
4-25. TG-8 Guide 4-34
4-26. Shuttle (Left) Ass'y 4-35
4-27. TG-5 Guide 4-37

4-28. Slide Rail (R) 4-38
4-29. Slide Rail (L) 4-39
4-30. Capstan Motor 4-40

5. TORQUE AND TAPE TENSION ALIGNMENT

5-1. S/T Reel Table Torque Adjustment 5-1
5-2. Tape Tension Adjustment 5-2

6. TAPE RUN ALIGNMENT

Adjustment Preparations 6-1
  1) Remote Controller 6-1
  2) Equipment and Tool 6-2
6-1. Coarse Tracking Adjustment 6-5
6-2. Tape Tension Adjustment 6-6
6-3. Tracking Adjustment 6-7
6-4. Checking After Tracking Adjustment 6-9
  6-4-1. RF Head-to-Tape Contact Check 6-9
  6-4-2. RF Rise Check 6-9
6-5. TG-9 Guide Height Adjustment 6-10
6-6. RVS Guide Height Adjustment 6-10
6-7. Tape Running Check 6-11
6-8. Audio Head Height Adjustment 6-12
6-9. Audio Head Azimuth Adjustment 6-13
6-10. Audio Head Head-to-Tape Contact Check 6-14
6-11. X Value Adjustment (Audio Head Position Adjustment) 6-15
6-12. Switching Position Adjustment 6-16
6-13. Tape Running Check 6-17
6-14. Self Recording/Playback Check 6-18

7. SYSTEM CONTROL ALIGNMENT

7-1. Back-Up Voltage Adjustment 7-1

8. AUDIO SYSTEM ALIGNMENT

8-1. Hi-Fi Audio EE LINE OUT Level Adjustment 8-1
8-2. Dolby NR Level (Normal Audio) Adjustment 8-2
8-3. Normal Audio EE LINE OUT Level Adjustment 8-2
8-4. Normal Audio PB Frequency Response Adjustment 8-2
8-5. Normal Audio PB Level Adjustment 8-2
8-6. Normal Audio Bias Current Pre-Adjustment 8-3
8-7. Normal Audio OA Frequency Response Adjustment 8-3
8-8. Normal Audio OA Level Adjustment 8-3
8-9. Hi-Fi Audio Carrier Frequency Adjustment 8-4
8-10. Hi-Fi Audio Switching Pulse Width Adjustment 8-4
8-11. Hi-Fi Audio PB RF Level Adjustment 8-4
8-12. Hi-Fi Audio REC Current Adjustment 8-4
8-13. Hi-Fi Audio OA RF Level Check 8-5
8-14. Hi-Fi Audio PB Level Adjustment 8-5
8-15. Hi-Fi Audio OA Level Adjustment 8-5

9. VIDEO SYSTEM ALIGNMENT

9-1. AGC ON Y Level Adjustment 9-1
9-2. AGC OFF Y Level Adjustment 9-2
9-3. White/Dark Clip Adjustment 9-2
9-4. Frequency Response Voltage Adjustment 9-3
9-5. PB Y Level Adjustment 9-3
9-6. PB Chroma Level Adjustment 9-4
9-7. SYNC Tip Carrier Set/Deviation Adjustment 9-4
9-8. Noise Cancel Adjustment 9-5
9-9. PB 4.43MHz OSC Adjustment 9-5
9-10. Y REC Current Adjustment (A-6727-315-A) 9-6
9-10. Y REC Current Adjustment (A-6727-315-B) 9-6
9-11. Chroma REC Current Adjustment 9-6
9-12. OA Y/C Delay Adjustment 9-7

10. BLOCK DIAGRAM

OVERALL 10-1
VIDEO SYSTEM 10-2
AUDIO SYSTEM 10-3
SERVO/SYSTEM CONTROL 10-4

11. SEMICONDUCTOR PIN ASSIGNMENT

IC 11-2
TRANSISTOR 11-12
DIODE 11-12

12. PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

Circuit Function of the Printed Circuit Board 12-1

VIDEO
RP-52A 12-2
VO-27 12-4
DL-44 12-8
AUDIO
AFM-10 12-10
CP-157 12-16
VR-125 12-17
SERVO/SYSTEM CONTROL
SS-47A, DA-49 12-18
KY-194A 12-24
DR-153 (a), (b), TR-68A 12-26
PTC-41 12-27
HN-160, LE-80, LE-86, SE-152, SE-159 12-28
POWER
AC-103A 12-30
FRAME
FRAME, AH-28, CM-14, LD-35, SE-151 12-31

13. SPARE PARTS AND FIXTURE

13-1. Parts Information 13-1
13-2. Exploded Views 13-2
  Ornamental Panel Block 13-3
  Printed Circuit Boards 13-4
  Cassette Compartment Block 13-5
  Head Drum and Tape Run Blocks 13-6
  Reel Table and Pinch Roller Blocks 13-7
  Mechanism Control Block 13-8
13-3. Electrical Parts List 13-9
13-4. Packing Material and Accessories 13-37
13-5. Optional Fixtures 13-38

SECTION 1
GENERAL DISCRIPTION

1-1. FEATURES

High reliability

Thanks to the two direct reel motors and a lower drum assembly using a rigid material, long-life operation will be possible. High reliability is also realized with a beltless mechanism.

Hi-Fi audio recording

FM audio signals can be recorded on a video track as well as on the audio tracks for ordinary recording. This actualizes high fidelity (Hi-Fi) sound reproduction. The output signal is selected either as normal sound or Hi-Fi sound.

Remote control operation

The operation of the SVO-960P is controlled with an external remote control unit with a serial control signal. Control with a 34-pin parallel signal or bi-directional serial signal will also be possible using the optional devices.

Data set function

Various statuses such as VTR ID, audio limiter ON/OFF, AGC circuit ON/OFF, etc. can be set as desired on the front panel.

ID number recording function

The five-digit VTR ID can be recorded on a control track of a tape from beginning to end. The recorded VTR ID can be shown on the time counter display during playback.
When an SVRM-901 serial controller (optional) is used, a 12-digit USER ID such as the current date (year/month/day, etc.) can be recorded.

Compact and light weight

The unit is 27 cm (10 3/4 inches) wide and weighs only 7.5 kg (16 lb 9 oz) for easy installation and maintenance.

Low power consumption

The power consumption is only 25 W.

Automatic checking function

When the test button on the SVRM-901 serial controller (optional) is pressed, the VTR automatically records video and audio signals, and plays them back to check recording conditions.

Loop-through output

Loop-through output connectors are equipped for video and audio signals which allows signal distribution for up to four VTRs without a distributor.

AUTO OFF and STAND-BY connectors

The connectors which output the VTR status or standby mode are provided.

Test terminals

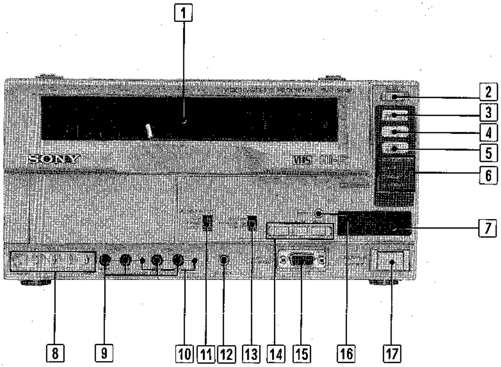
Output signals of the video and Hi-Fi audio heads, and a PG signal are output from these test terminals to be observed on an oscilloscope.

Cassette changer available

An SVCC-960 automatic cassette changer and an SVAC-902 cassette holder (optional) can be attached to the SVO-960P to supply up to four cassette tapes automatically.

1-2. LOCATION AND FUNCTION OF PARTS AND CONTROLS

[FRONT PANEL]



1 **Cassette compartment**
Used to insert a cassette tape.

2 **EJECT button**
Used to eject a inserted cassette from the cassette compartment.

3 **TAPE RUN indicator**
Lit: The tape is rewound, or runs rapidly.
Blinking: The tape is running.
Not lit: The part where no signal has been recorded is being played.

4 **REC (record) indicator**
Lit: In REC or REC PAUSE mode
Blinking: No video signal is being input while recording.

5 **EJECT/AUTO OFF indicator**
Lit: No cassette is inserted into the cassette compartment. (EJECT)
Blinking: Trouble with the VTR. (AUTO OFF)

6 **Record mode indication lamps**
Used to indicate the setting conditions with the data-setting buttons.
VIDEO AGC: Lights when VIDEO AGC is set to ON.
Hi-Fi: Lights when Hi-Fi audio recording is set to ON.
DOLBY NR*: Lights when the Dolby NR system is set to ON.
LIMITER: Lights when the limiter for normal audio recording is set to ON.
* Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.
"DOLBY" and the double-D symbol DD are trademarks of Dolby Laboratories Licensing Corporation.

7 **Time counter display**
Used to show tape running time, accumulated time of the rotation of the head drum and data setting with the data setting buttons. The displayed data is selected with the counter-display select switch.
There are two kinds of data for accumulated time of the rotation of the head drum, resettable data and nonresettable data. The data are alternately displayed each time the ITEM button is pressed.

8 **Test terminals**
Used to check the video and Hi-Fi audio signals being played back. Connect these terminals to the corresponding terminals on an oscilloscope. The PG terminal outputs the video head switching signal which is used as the trigger signal for the oscilloscope.

9 **AUDIO LEVEL controls**
Used to adjust the audio recording level.
For adjustment, input a reference signal of 1 kHz, –10 dBs to the AUDIO IN connectors, and turn the controls until the AUDIO LEVEL indicators 10 light. The NORM controls adjust the normal audio signals input to the AUDIO IN NORM connectors on the rear panel, and the Hi-Fi controls the HiFi audio signals input to the AUDIO IN Hi-Fi connectors. When the SVAC-901 audio meter (optional) is attached, turn the controls so that the needles of the meters swing up to 0 VU.

10 **AUDIO LEVEL indicators**
When the audio recording level is 0 VU or higher, the indicators are lit.

11 **AUDIO SELECT switch**
Used to select the output audio signal.
Hi-Fi: The Hi-Fi audio signal is output.
NORMAL: The normal-recorded audio signal is output.
REMOTE: The audio signal selected with the remote control unit is output. Normally used in this position.

12 **REMOTE connector (minijack)**
Used to connect an RM-V200 remote control unit.

13 **Counter display select switch**
Used to select the data shown on the time-counter display.
COUNTER: Tape running time by counting the CTL signals recorded on the tape.
HOURS METER: Accumulated time of the rotation of the head drum. Resettable or nonresettable time is shown each time the ITEM button is pressed.
Maximum displayed time
Resettable time: 9999 hours
Nonresettable time: 99999 hours
DATA SET: Data setting mode using the data-setting buttons.

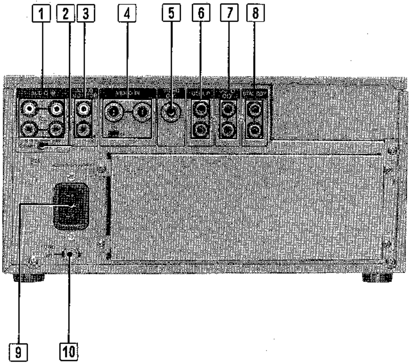
14 **Data-setting buttons**
Used to set the ID number, operation status of the VTR, etc.
ITEM: Used to select the item to be set.
DATA: Used to set the selected item to ON or OFF or the value of the selected item.
SHIFT: Used to select the digit of the data or a setting for the selected item.

15 **AUTO CHANGER connector (9-pin)**
Used to connect the optional SVCC-960 automatic cassette changer.

16 **RESET button**
Used to reset the data on the time-counter display. When the accumulated time of the rotation of the head drum is shown on the display, the data is reset by pressing this button for more than 5 seconds. (Nonresettable time, however, cannot be reset.)

17 **POWER switch**
Press the switch to turn the VTR on.

[REAR PANEL]



[1] **AUDIO IN CH-1/CH-2 connectors (phono jacks)**
Used to input the audio signals to be recorded.
For recording normal audio signals, input them to the AUDIO IN NORM connectors, and for recording Hi-Fi audio signals, to the AUDIO IN Hi-Fi connectors.

[2] **SEPARATE/THROUGH switch**
Used to select the functions of the AUDIO IN connectors.
SEPARATE: The AUDIO IN NORM connectors accept the normal audio signals and the AUDIO IN Hi-Fi connectors the Hi-Fi audio signals respectively.
THROUGH: The input signals are directly output from the other connectors (loop-through output) allowing bridge connections of normal or Hi-Fi audio signals.

[3] **AUDIO MONITOR CH-1/CH-2 connectors (phono jacks)**
Used to output the audio signal selected with the AUDIO SELECT switch on the front panel.

[4] **VIDEO IN connector (BNC type) and 75-ohm termination switch**
Used to input the video signal to be recorded.
When a loop-through output signal is not used, set the 75-ohm termination switch to ON. When an output signal is used, set the switch to OFF.

[5] **VIDEO OUT connector (BNC type)**
Used to output a video signal.

[6] **CTRL P connectors (phono jack)**
Used to connect the optional SVRM-901 serial controller or RM-V200 remote control unit. The control signal input to the IN connector is output from the OUT connector.

[7] **AUTO OFF connectors (phono jack)**
When trouble occurs with this unit, operation stops and a warning signal is output from this connector to the external equipment.
When VTRs are connected with the bridge connection and trouble occurs with one of them, the signal is output.

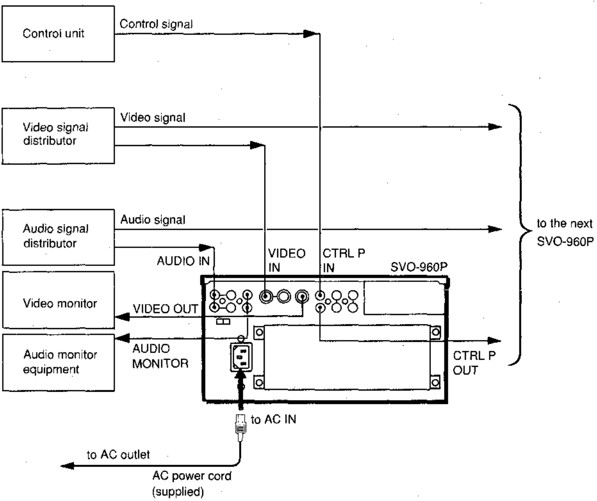
[8] **STANDBY connector (phono jack)**
When the VTR is in a mode other than EJECT, STOP, REC or REC PAUSE, the signal is output to the external equipment.
When the VTRs are connected with the bridge connection and one of them is in the specified mode, the signal is output.

[9] **AC IN receptacle**
Used to connect the AC output using the supplied AC power cord.

[10] **GND (ground) terminal (Up to S/N 14900)**
Used to ground the unit if required.

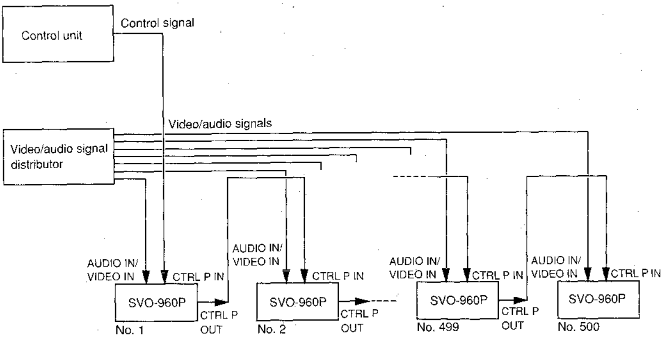
1-3. CONNECTIONS

1-3-1. Basic Connections


Control unit
Control signal
Video signal distributor
Video signal
Audio signal distributor
Audio signal
AUDIO IN
VIDEO IN
CTRL P IN
SVO-960P
Video monitor
VIDEO OUT
Audio monitor equipment
AUDIO MONITOR
CTRL P OUT
to the next SVO-960P
to AC IN
to AC outlet
AC power cord (supplied)

1-3-2. System Connection Example

For serial control


Control unit
Control signal
Video/audio signals
Video/audio signal distributor
AUDIO IN/ VIDEO IN
CTRL P IN
SVO-960P
CTRL P OUT
No. 1
AUDIO IN/ VIDEO IN
CTRL P IN
SVO-960P
CTRL P OUT
No. 2
AUDIO IN/ VIDEO IN
CTRL P IN
SVO-960P
CTRL P OUT
No. 499
AUDIO IN/ VIDEO IN
CTRL P IN
SVO-960P
No. 500

- When the SVRM-901 serial controller (optional) or RM-V200 remote control unit is used, up to 2,000 units of the SVO-960Ps can be controlled.

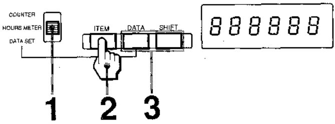
1-4. DATA SETTING

Set or display the data as follows:

1. Set the counter display select switch to DATA SET.
2. Select an item shown in the table by pressing the ITEM button.
3. Set or display the data by pressing the DATA or SHIFT button.

Note

The power should be supplied for more than 15 seconds to settle the changed data.


COUNTER
HOURS METER
DATA SET
ITEM
DATA
SHIFT
888888
1
2
3

Items	Time-counter display	How to set or display	Remarks
Setting the VTR ID	n 00000	Press the SHIFT button to select the digit to be set, and press the DATA button to set the value.	—
Displaying USER ID	Uid 000000 000000	Each time the SHIFT button is pressed, the three data are displayed alternately.	Data sent from the SVRM-901 serial controller (date, time, etc.)
Displaying the VTR ID of the tape being played back	tAPid 00000	—	For distinguishing the VTR used for recording
Displaying the USER ID of the playback tape	tAPUid 000000 000000	Each time the SHIFT button is pressed, the three data are displayed alternately.	—
ON/OFF of recording the VTR ID and USER ID	idr - $\boxed{\text{On}}$ - OF	Each time the DATA button is pressed, the setting is toggled.	The data can be set with the remote control unit.
ON/OFF of the video AGC circuit	AgC - $\boxed{\text{On}}$ - OF	Each time the DATA button is pressed, the setting is toggled.	The data can be set with the remote control unit.
ON/OFF of an audio limiter	Lit - On - $\boxed{\text{OF}}$	Each time the DATA button is pressed, the setting is toggled.	For normal recording of an audio signal. The data can be set with the remote control unit.
ON/OFF of Hi-Fi audio recording	HFr - $\boxed{\text{On}}$ - OF	Each time the DATA button is pressed, the setting is toggled.	The data can be set with the remote control unit.
ON/OFF of Dolby NR recording	dOL - On - $\boxed{\text{OF}}$	Each time the DATA button is pressed, the setting is toggled.	The data can be set with the remote control unit.
ON/OFF of short FF (whether short FF is done when the beginning of the tape is detected)	SFF - $\boxed{\text{On}}$ - OF	Each time the DATA button is pressed, the setting is toggled.	—
ON/OFF of auto-rewind (whether the tape is rewound when the tape is inserted)	ArE - On - $\boxed{\text{OF}}$	Each time the DATA button is pressed, the setting is toggled.	—
ON/OFF of full-rewind (whether the tape is rewound to the beginning when the tape end is detected)	FrE - On - $\boxed{\text{OF}}$	Each time the DATA button is pressed, the setting is toggled.	—
Timing of the automatic cassette changer's operation (whether the changer is activated when the EJECT button on the remote control unit is pressed)	ACS - $\boxed{\text{On}}$ - OF	Each time the DATA button is pressed, the setting is toggled.	ON: The changer is activated when the EJECT button is pressed.
ON/OFF of recording depending on the existence of the video signal input	InP - $\boxed{\text{On}}$ - OF	Each time the DATA button is pressed, the setting is toggled.	OFF: The VTR is not set to record mode if a video signal is not input. Err-72 is displayed.
ON/OFF of the function to ignore the write-protect tab	tAb - $\boxed{\text{On}}$ - OF	Each time the DATA button is pressed, the setting is toggled.	ON: Recording is executed even if the write protect tab is set to the write-protect position.

☐: Factory setting

SECTION 2
SERVICE INFORMATION

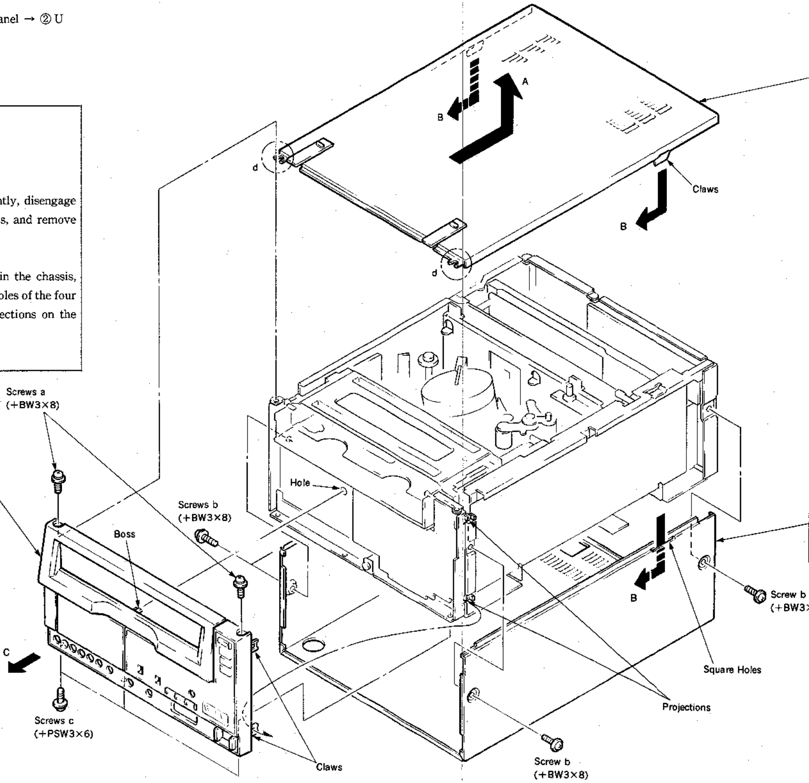
2-1. HOW TO REMOVE AND RE-INSTALL THE EXTERNALS

Remove the externals in the sequence ① Top panel → ② U case → ③ Front panel.

③ Front panel

Removal
1) Remove the top panel.
2) Remove the U case.
3) Remove the three c screws.
4) Open the four left and right claws slightly, disengage them from the projections in the chassis, and remove then in the direction of arrow C.

Re-installation
1) While aligning the boss with the hole in the chassis, push in the front panel until the square holes of the four left and right claws lock into the projections on the chassis.
2) Fix the panel with the three c screws.


A
B
B
B
d
d
Claws
Screws a
(+BW3×8)
Screws b
(+BW3×8)
Boss
Hole
C
Screws c
(+PSW3×6)
Claws
Screw b
(+BW3×8)
Square Holes
Projections
Screw b
(+BW3×8)

① Top panel

Removal
1) Remove the two screws a, then remove the panel in the direction of arrow A.

Re-installation
1) Insert the two left and right claws into the square holes in the U case, then move the d part in the direction of arrow B and insert it between the front panel and the chassis. (Fig. 1)

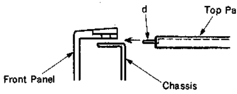

d
Top Panel
Front Panel
Chassis

Fig. 1

2) Fix the top panel with the two screws a.

② U case

Removal
1) Remove the top panel.
2) Place the unit with the top face at the bottom, then remove the four left and right screws b.

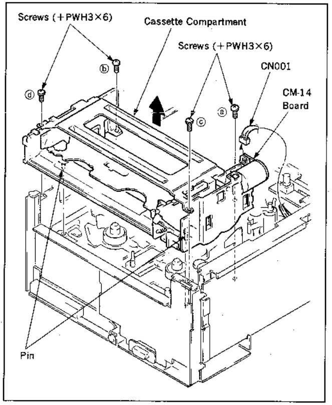
2-2. HOW TO REMOVE THE CASSETTE COMPARTMENT (FL, ASS'Y)

1. Remove the top panel, U case and front panel according to sub-section 2-1.
2. Disconnect connector CN001 from the CM-14 board.
3. Remove the four screws, then remove the cassette compartment in the direction of the arrow.

Precautions for re-installing the cassette compartment.

①Align the two pins of cassette compartment to the holes of mechanical shassis.

②Tighten the screws in order of steps ⓐ to ⓓ.

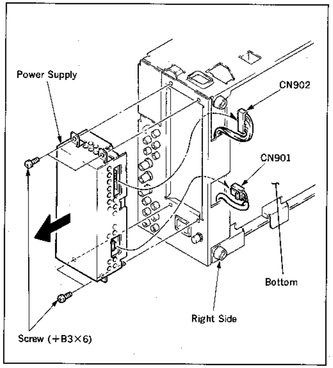

Screws (+PWH3×6)
Cassette Compartment
Screws (+PWH3×6)
CN001
ⓑ
ⓓ
CM-14 Board
ⓐ
ⓒ
Pin

2-3. HOW TO REMOVE THE POWER SUPPLY

1. Remove the top panel and the U case according to sub-section 2-1.
2. Stand up the unit with the right side at the bottom.
3. Disconnect connectors CN901 (3-pin, white) and CN902 (10-pin, white).
4. Remove the four screws, then remove the power supply in the direction of the arrow.

Precautions for re-installing the power supply.

Place the power supply in such a way that when it is re-installed the connectors are at the bottom of the unit.


Power Supply
CN902
CN901
Bottom
Right Side
Screw (+B3×6)

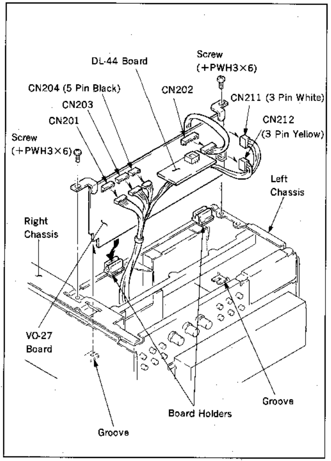
2-4. HOW TO SERVICE THE PRINTED CIRCUIT BOARD

2-4-1. How to remove the VO-27 and DL-44 Boards

1. Remove the top panel according to sub-section 2-1.
2. Remove the two screws.
3. Pull up the VO-27/DL-44 boards.
4. Insert the VO-27 board into the two holders in the chassis board holder.
5. Disconnect the following six connectors: CN201, 202, 203, 204, 211, 212/VO-27 board.

Precautions for re-installing the printed circuit boards.

Align the VO-27 board with grooves in the left/right chassis.

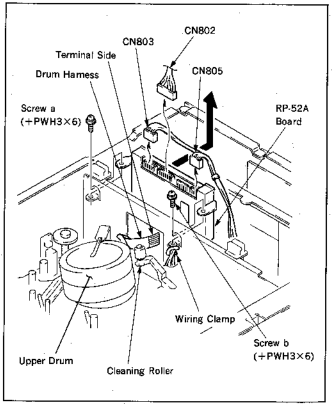

DL-44 Board
Screw
(+PWH3×6)
CN204 (5 Pin Black)
CN203
CN201
CN202
CN211 (3 Pin White)
CN212
(3 Pin Yellow)
Screw
(+PWH3×6)
Left
Chassis
Right
Chassis
VO-27
Board
Board Holders
Groove
Groove

2-4-2. How to remove the RP-52A Board

1. Remove the top panel according to sub-section 2-1.
2. Disconnect connectors CN802, 803 and 805 from the RP-52A board.
3. Remove the VO-27/DL-44 boards according to sub-section 2-4-1. (Note that, there is no need to disconnect the connectors.)
4. Remove the two screws a and b.
5. Remove the drum harness.
6. Remove the RP-52A board together with the shield case in the direction of the arrow.

[Precaution for re-installation]

1) Be careful of the direction of the terminals when re-connecting the drum harness.
2) Confirm that the drum harness does not touch the upper drum and the cleaning roller.
3) Fix the wiring clamp with screw b.

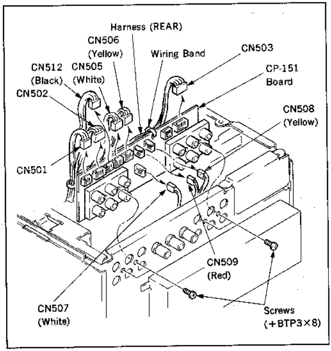

CN802
CN803
Terminal Side
Drum Harness
CN805
Screw a
(+PWH3×6)
RP-52A
Board
Wiring Clamp
Screw b
(+PWH3×6)
Upper Drum
Cleaning Roller

2-4-3. How to remove the CP-151 Board

1. Remove the top panel according to sub-section 2-1.
2. Cut and remove the wiring band fixing the harness (rear) to the CP-151 board.
3. Disconnect connectors CN501, 502, 503, 505, 506 and 512 from the CP-151 board.
4. Remove the four screws.
5. Disconnect connectors CN507, 508 and 509 of the BNC connectors harnesss.

Precautions for installation

- Bind the harness (rear) once again with cord, etc.

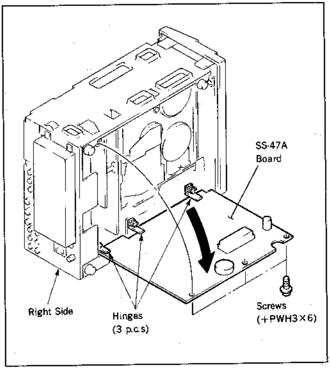

Harness (REAR)
CN506
(Yellow)
Wiring Band
CN503
CN512
(Black)
CN505
(White)
CN502
CP-151
Board
CN508
(Yellow)
CN501
CN509
(Red)
CN507
(White)
Screws
(+BTP3×8)

2-4-4. How to open the SS-47A Board

1. Remove the top panel and the U case according to sub-section 2-1.
2. Stand up the VTR with the right side face downward.
3. Remove the three screws, then open the SS-47A board in the direction of the arrow.

Removal method

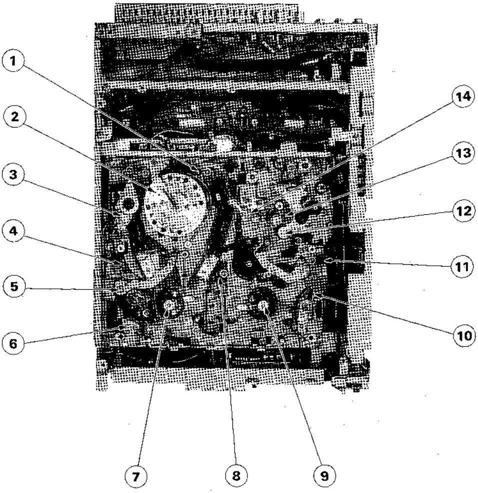
1. Disconnect all of the connectors coming from the main unit, from the SS-47A board.
2. Remove the three hinges from the SS-47A board.


SS-47A
Board
Right Side
Hinges
(3 p.c.s)
Screws
(+PWH3×6)

2-5. LOCATION OF MAIN PARTS

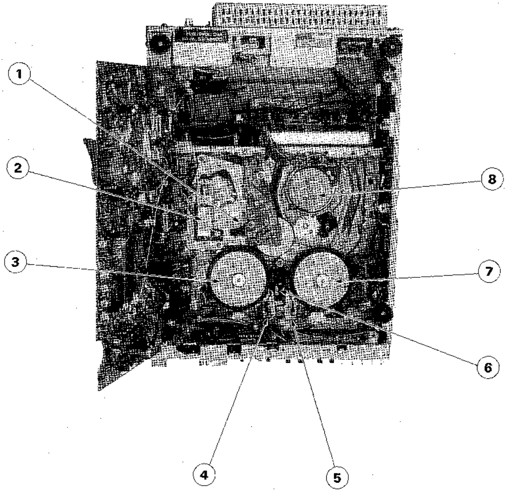
2-5-1. Location of the Main Mechanical Parts/Components

(TOP VIEW)



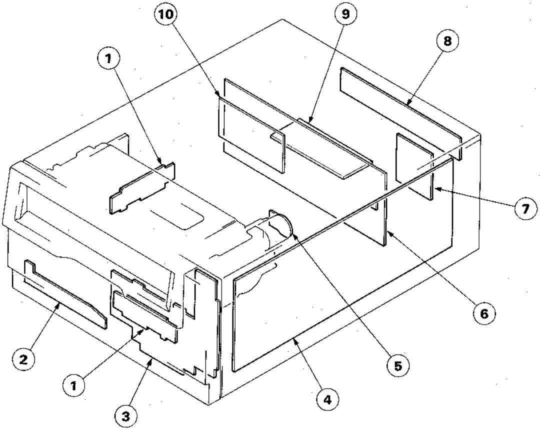
① Cleaning Roller	⑧ Tape Top/End LED
② Drum Assembly	⑨ Take-up Reel Table
③ Full Erase Head	⑩ Cassette Down Switch
④ Tape End Senser	⑪ Tape Top Senser
⑤ Tension Regulator	⑫ Pinch Roller
⑥ Miss REC Switch	⑬ Capstan Shaft
⑦ Supply Reel Table	⑭ AUDIO/CTL Head

(BOTTOM VIEW)



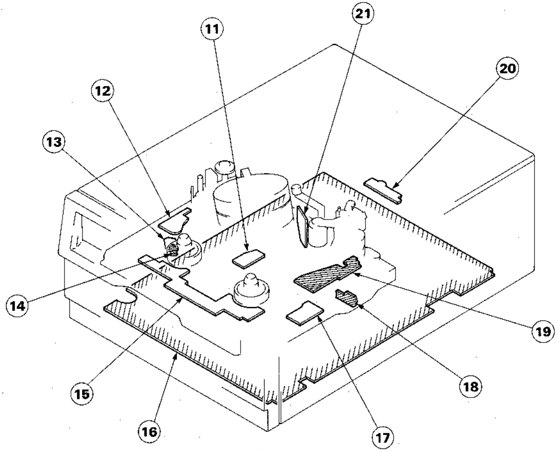
① Capstan Motor
② Cam Motor Assembly
③ Take-up Reel Motor
④ T • Brake Arm
⑤ S • Brake Arm
⑥ Brake Solenoid
⑦ Supply Reel Motor
⑧ Drum Assembly

2-5-2. Location of the Printed Circuit Boards



① DR-153 Board
② VR-125 Board
③ KY-194A Board
④ AFM-10 Board
⑤ CM-14 Board
(Cassette Compartment)

⑥ VO-27 Board
⑦ AC-103A Board
⑧ CP-151 Board
⑨ DL-44 Board
⑩ RP-52A Board


11
12
13
14
15
16
17
18
19
20
21

⑪ LE-80 Board
⑫ SE-151 Board
⑬ SE-159 Board
⑭ LE-86 Board
⑮ HN-160 Board
⑯ SS-47A Board
(Include DA-49 Board)
⑰ SE-152 Board
⑱ LD-35 Board
⑲ PTC-41 Board
⑳ TR-68A Board
㉑ AH-28 Board

2-6. PRINTED CIRCUIT BOARD

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	RP-52A	Video/AFM Head Amp
	VO-27	Y/C Video Process
	DL-44	CCD 1H Delay
AUDIO	AFM-10	AFM Process/Normal Audio Process
	AH-28	Audio/Erase/CTL Head
	VR-125	Audio Level Control
SERVO • SYSTEM CONTROL	SS-47A	Servo, System Control
	DA-49	DA Convertor
	DR-153 (a)	Driver for T-Reel
	DR-153 (b)	Driver for S-Reel
	CM-14	Cassette Compartment Motor
	LD-35	Loading Motor
	LE-80	Tape Top/End LED
	LE-86	Tension Regulator LED
	PTC-41	CAM Mode Detect
	KY-194A	Function Key Board
	SE-151	Tape End Sensor
	SE-152	Tape Top Sensor
	SE-159	Tension Regulator CDS Detect
	TR-68A	Tracking/Switching Position Volume
POWER	AC-103A	AC Input
	—	Switching Regulator
OTHER	CP-151	Connector Panel
	HN-160	Connection

2-7. CONNECTORS

When external cables are connected to the various connectors on the connector panel during maintenance, the hardware listed below (or equivalents) must be used.

PANEL INDICATION	CONNECTOR
VIDEO IN VIDEO OUT	1-560-069-11 PLUG, BNC, MALE
AUDIO IN AUDIO MONITOR CTRL P AUTO OFF STANDBY	1-506-138-11 PLUG, PIN

2-8. CONNECTOR INPUT/OUTPUT SIGNAL

The connector INPUT/OUTPUT signals of the connector panel are as follows.

INPUT

VIDEO IN : 1.0Vp-p, 75Ω, Unbalanced, Sync negative

AUDIO IN : −10dBs (0dBs=0.775V), 47kΩ
CH-1/L, CH-2/R
NORM, Hi-Fi

OUTPUT

VIDEO OUT : 1.0Vp-p, 75Ω, Unbalanced, Sync negative

AUDIO MONITOR : −10dBs (0dBs=0.775V), 47kΩ
CH-1/L, CH-2/R

2-9. SPARE PARTS

(1) The ⚠ -marked components are critical to safety. Replace only with the same components as specified.

(2) Replacement parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to the use of improved parts and/or to engineering changes or standardization of genuine parts. This manual's exploded views and electrical spare parts list indicate the part numbers of the standardized genuine parts in use at present. Regarding parts in our engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with s in the SP column of the exploded views and electrical spare parts list are normally stocked for replacement purposes. The parts marked with o in the SP column are not normally required for routine service work. Orders for parts marked with o will be processed, but allow for additional delivery time.

2-10. HOW TO OPERATE THE CASSETTE COMPARTMENT ASS'Y AND ALSO THE VTR WITHOUT TAPE

(1) Remove the cassette compartment according to sub-section 2-2.
(2) Turn ON No. 8 switch of DIP switch S101/SS board (I-9). (This is to neutralize the tape top/end sensor function)
(3) Push down the CASSETTE DOWN switch with tape, etc.
(4) Turn the POWER switch ON.

In this condition, the VTR can be operated from the remote controller (RM-V200, RM-V100, SVRM-100 etc.).

Note : Be sure to turn No. 8 switch OFF after completion of operation.

[Operating the VTR with the cassette compartment removed and a cassette tape loaded]
- Be sure to turn OFF No. 8 switch of DIP switch S101. (If the DIP switch is turned ON, the tape will not stop at the tape top/end, resulting in possible damage to the head tip and deformation of the tape guide.)

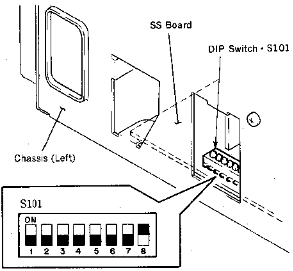


Fig. 1

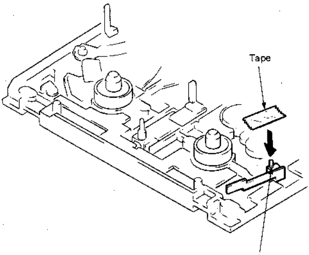


Fig. 2

2-11. HOW TO REMOVE CASSETTE TAPE WHEN IT CANNOT BE EJECTED

1. Remove the top panel and the U case according to sub-section 2-1.
2. Open the SS board according to sub-section 2-4-4.
3. Remove the screw, then remove the cam motor ass'y from the drive gear ass'y. (Fig. 1)
4. Rotate the worm wheel of the drive gear ass'y with the fingers in the direction of the arrow until the tape threading guides are in the unthreading end state. (Fig. 1)
5. Rotate the S side reel motor with the fingers in the direction of the arrow so that the tape is taken up into the cassette. (Fig. 1)
6. Rotate the loading motor of the cassette compartment ass'y with the fingers in the direction of arrow A, and eject the cassette. (Fig. 2)

How to re-install the cam motor ass'y

1) Fit the groove of the cam motor ass'y over the 'a' face of the drive gear ass'y. (Fig. 1)
2) Align the hole in the cam motor ass'y with the projection on the drive gear ass'y. (Fig. 1)
3) Set the cam motor parallel to the 'b' face of the drive gear ass'y, then screw it fixed. (Fig. 3)

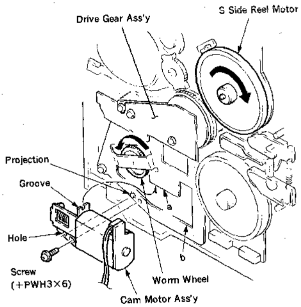

Drive Gear Ass'y
S Side Reel Motor
Projection
Groove
a
Hole
b
Screw
(+PWH3X6)
Worm Wheel
Cam Motor Ass'y

Fig. 1

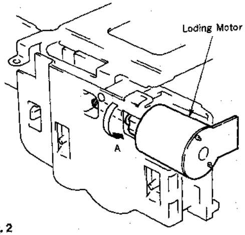

Loding Motor
A

Fig. 2

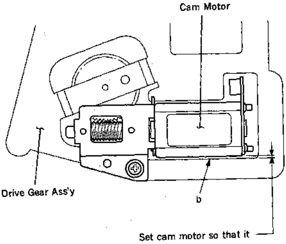

Cam Motor
Drive Gear Ass'y
b
Set cam motor so that it is parallel to "b" face.

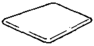
Fig. 3

2-12. FIXTURE

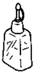
Ref. No	Part No.	Description	For Use
J-1	2-034-697-00	Cleaning Cloth	Cleaning
J-2	Y-2031-001-0	Cleaning Fluid	Cleaning
J-3	7-700-736-05	L-Shaped Hexagonal Wrench (1.5mm)	Reel table ass'y replacement
J-4	7-700-736-06	L-Shaped Hexagonal Wrench (0.89mm)	Guide roller ass'y replacement
J-5	9-911-053-00	Thickness Gauge	Guide roller ass'y replacement
J-6	8-192-603-16	Alignment Tape, KRV-31PS (PAL)	Audio alignment
	8-719-603-96	Alignment Tape, KRV-39PF (PAL)	
	8-192-603-56	Alignment Tape, KRV-35PF (PAL)	Video and Audio alignment
	8-192-602-46	Alignment Tape, KRV-4821PS (PAL)	Tape run adjustment
	8-192-602-48	Alignment Tape, KRV-4821PSA (PAL)	X Value adjustment
	H-7099-052-H	Alignment Tape, JVC-MH-2 (PAL)	Switching position
J-7	J-6380-710-A	X Value Adjustment Tool	X Value adjustment
J-8	H-7099-035-H	Torque Gauge Adaptor	S/T Reel table winding torque check
J-9	H-7099-039-H	Torque Gauge	
J-10	J-6380-040-A	RG Reference Pin (1)	Drive gear replacement
J-11	J-6380-050-A	RG Reference Pin (2)	
J-12	J-6380-080-A	Reference Plate	Reel table and tape guide height adj. Audio head azimuth and zenith adj.
J-13	J-6380-090-A	Reel Table Height Adj. Tool	Reel table height adjustment
J-14	J-6380-700-A	Master Block	Tape guide height adjustment Audio head azimuth and zenith adj.
J-15	J-6380-550-A	Master Block	Tape guide height adjustment
J-16	J-6080-840-A	Small Mirror	Tape run adjustment
J-17	Commercially Sold	Tentelometer, T2-H7-UMC	Tape tension adjustment
J-18	Commercially Sold	Head Degausser	Head degauss
J-19	J-6082-044-A	Tape Guide Adjustment Screwdriver	Tape guide height adjustment
J-20	J-6080-811-A		
J-21	7-700-751-02	Box Screwdriver (width 5.5mm)	Tape run adjustment
J-22	J-6090-014-A	MOLYKOTE Grease EM-30LG	Greasing
	4-918-645-01	MOLYKOTE Grease EM-30L	

NOTE 1: Require Remote Control Unit RM-V100 or RM-V200 (option) to moving the VTRs When you repair this set.
NOTE 2: TENTEL and TENTELOMETER are registered trademark of TENTEL Corp., Campbell, CA U. S. A.

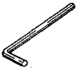
J-1



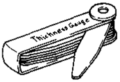
J-2



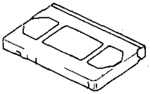
J-3, J-4



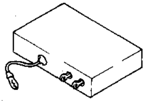
J-5


Thickness Gauge

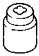
J-6



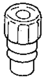
J-7



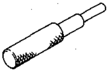
J-8



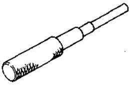
J-9



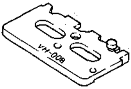
J-10



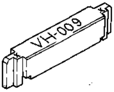
J-11



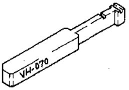
J-12



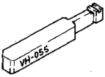
J-13



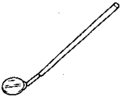
J-14



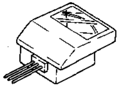
J-15



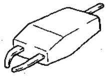
J-16



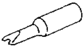
J-17



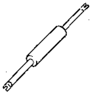
J-18



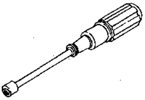
J-19



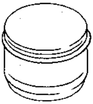
J-20



J-21



J-22



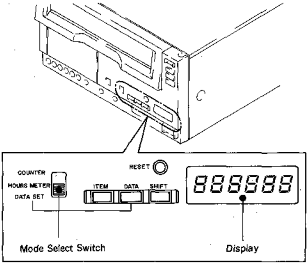
2-13. TEST MENU

This VTR is provided with the necessary test menu for performing maintenance, inspection and repair.
The test menu has the following six modes.

Mode	Functions
1. Function key mode	VTR operation function used when there is no remote controller
2. Data display mode	Data display during and after VTR operation
3. Test level setting mode	Video and audio signal level setting
4. Self diagnostic mode	Self diagnostic function
5. NOVRAM setting mode	Correcting variations in centering of tracking control
6. Data setting mode	Data setting for ID No., VTR operating condition, etc. (For details, see "Data Setting" in the instruction manual.)

Operating method

The test menu is operated with the switches/buttons on the front panel. The selected mode appears on the test display.



2-13-1. Function Key Mode

This VTR has no function keys. Normally, it is operated using the remote controller. If there is no remote controller, the buttons on the VTR can be used as function keys.

- **Mode setting**

  Short TP102/KY board (B-5) and TP104/KY board (E-2) with a shorting clip.

- **Operation method**

  Operate the mode select switch, then press the [ITEM], [DATA], [SHIFT] or [RESET] button. (See table below.)

OPERATION BUTTON		ITEM	DATA	SHIFT	RESET
Mode Select Switch	COUNTER mode	STOP key	FF key	REW key	RESET key
	HOUR METER mode	PLAY key	REC key	FWD•SEARCH key	REV•SEARCH key

Example of operation

FF ▷ STOP → [DATA] button ▷ [ITEM] button

REC → Press the [ITEM] button and [DATA] button simultaneously.

PLAY ▷ STOP → [ITEM] button ▷ Set the mode select switch to the COUNTER mode ▷ [ITEM] button

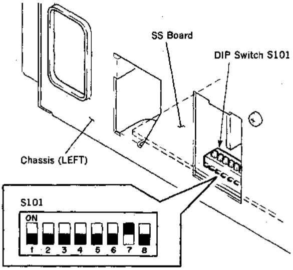
Caution: Remove the shorting clip after the end of the function key mode.

2-13-2. Data Display Mode

The state of the VTR and data obtained during and after operation appear on the display. There are 29 menus. Use them to check the various parts of the VTR.

- **Mode setting**

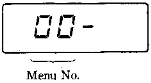
1. Set No. 7 switch of DIP switch (S101/SS board (J-9)) to the ON side.
2. Set the mode select switch to COUNTER.



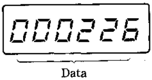
• Operation method

Press the [ITEM] button to select the desired menu.
Each time the button is pressed, the menu will change progressively from No. 00 to 28.

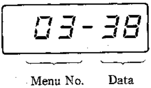
1. Menu No. 00 to 02
   Press the [ITEM] button.



   Press the [SHIFT] button. The contents of the data will be displayed.



2. Menu No. 03 to 28
   Press the [ITEM] button. The menu No. and the contents of the data will be displayed.



3. To cancel the data display mode, turn No. 7 switch OFF.

• Data contents

No. 00 to 02, No. 06 to 15, No. 23 to 28 .... Indicates the state of the inside of the microprocessor.

No. 03 to 05, No. 16 to 22 .... Indicates the input/output port of the microprocessor.

The data is indicated as a hexadecimal number. (Excluding menu No. 00 to 02)

Menu No.	Data contents	Input/output port of corresponding microprocessor
00	Number of threading operations (indicated as a decimal number between 0 and 999999)	
01	Number of cassette IN operations (indicated as a decimal number between 0 and 999999)	
02	Number of pinch ON operations (indicated as a decimal number between 0 and 999999)	
03	Peripheral block control (1)	PA0~PA7 IC101/SS board
04	Peripheral block control (2)	PB0~PB7 IC101/SS board
05	Peripheral block control (3)	PH0~PH7 IC101/SS board
06	Command to mechanism	
07	Status to mechanism	
08	Cam position status	
09	Cassette status	
10	Command to servo block	
11	Servo block status	
12	Drum servo mode	
13	Capstan servo mode	
14	Tracking control A/D result	
15	Switching position control A/D result	
16	Reel status	P20~P23, P30~P33 IC306/SS board
17	T side reel torque value	P40~P43, P50~P53 IC306/SS board
18	S side reel torque value during program tension	P60~P63, P70~P73 IC306/SS board
19	Reel control (1), peripheral block control (4)	P80~P83, P90~P93 IC306/SS board
20	Sensor LED open circuit detection	PTH03~PTH00 IC306/SS board
21	Reel control (2), peripheral block control (5)	P120~P123, P130~P133 IC306/SS board
22	Peripheral block control (6)	P140~P143 IC306/SS board
23	Key input status (1)	
24	Key input status (2)	
25	Remote controller key input status (1)	
26	Remote controller key input status (2)	
27	Display data (1) to LED	
28	Display data (2) to LED	

DATA DESCRIPTION DETAILS

MENU NO.	DATA DESCRIPTION (IF IT ISN'T WORTH SPECIAL MENTION, IT IS HEXADECIMAL DIGIT.)							
	bit7	bit6	bit5	bit4	bit3	bit	bit1	bit0
00	THREADING TIMES (DECIMAL DIGIT : 0~999999)							
01	CASSETTE IN TIMES (DECIMAL DIGIT : 0~999999)							
02	PINCH ROLLER ON TIMES (DECIMAL DIGIT : 0~999999)							
03	AFM REC	$\overline{\text{AMS}}$						
04	$\overline{\text{CAPSTAN FWD}}$	$\overline{\text{REC}}$		LAU SEARCH MODE	LOAD	CCON	CW	
05					$\overline{\text{EE/PB}}$	$\overline{\text{AU EE}}$	$\overline{\text{AFM MUTE}}$	LAU MUTE
06	MECHA COMMAND (01 : EJECT, 02 : STOP, 03 : FF, 04 : REW, 10 : PLAY/REC, 20 : PAUSE, 30 : FWD SEARCH, 40 : REV SEARCH)							
07	MECHA STATUS (01 : EJECT, 02 : STOP, 03 : FF, 04 : REW, 05 : LOADING/UNLOADING, 10 : PLAY/REC, 20 : PAUSE, 30 : FWD SEARCH, 40 : REV SEARCH)							
08	PINCH ON	PINCH ON ~THREADING END	THREADING END	BRAKE MODE	BRAKE MODE ~FRSTOP	FRSTOP	FRSTOP ~UNTHREADING END	UNTHREADING END
09				CASSETTE EXIST	$\overline{\text{TAPE END}}$	$\overline{\text{TAPE TOP}}$	$\overline{\text{CASSETTE DOWN}}$	$\overline{\text{CASSETTE IN}}$
10	SERVO DIRECTION CMD H : FWD L : REV		SERVO PLAY CMD	SERVO REC CMD	SERVO PAUSE CMD	SERVO SEARCH CMD	SERVO ×5VV SCH CMD	SERVO ENABLE CMD
11		VIDEO IN DETECT	CTL EXIST	NOISELESS STILL REQ	CAPSTAN STOP	DRUM STOP	CAPSTAN LOCK	DRUM LOCK
12	DRUM SERVO MODE (0 : OFF MODE, 1 : REC/PLAY MODE, 2 : AFC MODE)							
13	CAPSTAN SERVO MODE (0 : OFF MODE, 1 : REC MODE, 2 : PLAY MODE, 3 : PINCH OFF MODE, 4 : ×5VV SCH MODE, 5 : SEARCH MODE, 6 : PLAY PAUSE MODE, 7 : REC PAUSE MODE)							
14	A/D DATA OF TRACKING CONTROL VOLUME (IT DISPLAY "80" IN THE VOLUME CENTER, IT USUALLY DISPLAY WITHIN "70" TO "90".)							
15	A/D DATA OF SWITCHING POSITION VOLUME							
16					T-REEL STATUS H : FWD L : REV	$\overline{\text{T-REEL STOP}}$ H : ROTATE L : STOP	S-REEL STATUS H : FWD L : REV	$\overline{\text{S-REEL STOP}}$ H : ROTATE L : STOP
17	T-REEL TORQUE							
18	S-REEL TORQUE							
19	$\overline{\text{AGC OFF \& PB}}$	(EP)	(LP)	SP	PAUSE TENSION	T-REEL COMMAND L : FWD H : REV	S-REEL COMMAND L : FWD H : REV	BRAKE ON
20							$\overline{\text{TEN-REG LED BROKEN}}$	$\overline{\text{TOP/END LED BROKEN}}$
21	STANDBY	DOLBY ON	AFM OUT SELECT	$\overline{\text{LIMITTER ON}}$	$\overline{\text{TOP/END LED ON}}$	TENSION-REG CHARGE CLEAR	$\overline{\text{TENSION-REG ON}}$	REEL CONTROL MODE L : SPEED H : TORQUE
22					$\overline{\text{TEST TONE OFF}}$	TEST TONE SELECT	LAU ENV SELECT	VO/AU ENV SELECT
23				EJECT KEY ON	RESET KEY ON	SHIFT KEY ON	DATA KEY ON	ITEM KEY ON
24					MODE SW =COUNTER	MODE SW =DATA SET	AUDIO SEL =HIFI	AUDIO SEL =REMOTE
25	REMOTE STOP IN		REMOTE FF IN	REMOTE REW IN	REMOTE PAUSE IN	REMOTE PLAY IN	REMOTE REV IN	REMOTE FWD IN
26		REMOTE REC IN	REMOTE EJECT IN	REMOTE START IN				
27		$\overline{\text{CHANGER AUTO OFF}}$				AGC LED ON	HiFi LED ON	DOLBY LED ON
28		TAPE RUN LED ON	LIMITTER LED ON	$\overline{\text{CHANGER CASSE DOWN}}$	$\overline{\text{CHANGER CASSE UP}}$	$\overline{\text{CHANGER START}}$	AUTO OFF LED ON	REC LED ON

2-13-3. Test Level Setting Mode

The standard levels of this VTR have been set at the factory.

RF level of video signal: 250mV
RF level of Hi-Fi audio signal: 75mV
Levels of channels 1 and 2 of the normal recorded audio: −14dBs
Balance between the normal recorded audio channels: 6dB

This mode is used to change the set levels.
The following three menus are provided.

(1) VIDEO RF LEVEL SET
(2) AFM RF LEVEL SET
(3) NORMAL AUDIO LEVEL SET

● Mode setting

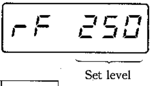
1. Set the mode select switch to DATA SET.
2. While pressing the [RESET] and [DATA] buttons simultaneously, turn the [POWER] switch ON.

● Operation method

1. Press the [ITEM] button to select a menu.
2. Press the [DATA] button to select the setting level.
3. To clear the test level setting mode, set the mode select switch to HOUR METER or COUNTER.

(1) VIDEO RF LEVEL SET

The RF level of the video signal can be set in steps of 50mV between 150mV and 450mV.

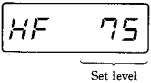


Factory setting

RF (mV)	150	200	250	300	350	400	450

(2) AFM RF LEVEL SET

The RF level of the Hi-Fi audio signal can be set in steps of 25mV between 50mV and 150mV.

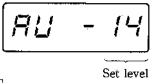


Factory setting

RF (mV)	50	75	100	125	150

(3) NORMAL AUDIO LEVEL SET

The levels of CH-1 and CH-2 of the normal recorded audio can be set in steps of −1dBs between −16dBs and −11dBs.



Factory setting

OUT (dBs)	−11	−12	−13	−14	−15	−16

2-13-4. Self Diagnostic Mode

The following two Kinds of automatic checks can be performed in the diagnostic mode.

(1) Operation function and recording/playback level

(2) Communications in the KY board

If an error occurs, carry out a check according to the displayed error code.

1. Self diagnosis of operation function and recording/playback level

Carry out self diagnosis using serial controller SVRM-901.

Carry out recording and playback for a short period using the non-recorded part at the beginning or end of the tape, then check the recording and playback levels, and also the balance between the audio channels. Once the part of the tape that has been recorded for checking purposes has been checked, the tape will be automatically rewound and erased.

If an error occurs, the auto OFF mode will be activated automatically, the AUTO OFF indicator will flash, and an error code will appear on the display.

• Preparations

1) Input color bar signals to the VIDEO IN connector on the rear panel.

2) Load a video cassette into the VTR.

3) Connect the serial controller SVRM-901 to the VTR.

• Operation method

Press the [TEST] button of the SVRM-901.

Automatic checking will start, then stop after about 50 seconds.

- **Error codes**

The sub-codes can be displayed by pressing the [SHIFT] button.

Error	Main code	Sub code	Error contents
Servo system error	Err-01	—	Reel table stop or rotation direction error
	Err-02	—	Tape slack
	Err-03	—	Capstan motor stop or servo lock error
	Err-04	—	Drum stop or servo lock error
	Err-05	—	Reel table rotation abnormality
Mechanism and system control system error	Err-20	02	Error that occurred during threading
		03	Error that occurred during unthreading
		05	Cassette compartment error
		06	Reel stop signal is not returned from the RS microprocessor.
		30	Error in communications with the RS microprocessor
	Err-22	—	Error in communications with the I/F microprocessor
	Err-23	—	Error in communications from the KY board to the SS board
Sensor system error	Err-30	—	Tension regulator LED error
	Err-31	—	Tape beginning/end LED error
	Err-32	—	Cam mode LED error
Video system error	Err-40	01	Abnormality in the RF level at the beginning of the 1-field video signal
		02	Abnormality in the RF level at the middle of the 1-field video signal
		03	Abnormality in the RF level at the end of the 1-field video signal
Audio system error	Err-50	01	Abnormality in the level of CH-1 of the normal recorded audio
		02	Abnormality in the level of CH-2 of the normal recorded audio
		03	Abnormality in the balance between CH-1 and CH-2 of the normal recorded audio
	Err-51	01	Abnormality in the RF level at the beginning of the 1-field Hi-Fi audio signal
		02	Abnormality in the RF level at the middle of the 1-field Hi-Fi audio signal
		03	Abnormality in the RF level at the end of the 1-field Hi-Fi audio signal
Duplicator error	Err-70	—	During an automatic check, the VTR fails to enter the recording mode because there is no non-recorded passage on the tape.
	Err-71	—	During recording, the tape end was detected. (This error is not detected if No. 4 switch of DIP switch (S101/SS board (J-9)) is ON.)
	Err-72	—	Error that occurs when the video input signal drops out during recording (This code appears when “InP-OF” has been set in data setting mode.)
	Err-73	—	Error caused by an EMG.STOP command from the bidirectional remote controller SVRM-960
Communication error	Err-90	—	Communications error from the SS board in the direction of the KY board

2. Self diagnosis of ky board

An automatic check of communications in the KY board takes place.

• Operation method

(1) Test of 7-segment LED and mode LED

• Mode setting

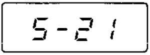
1. Short TP103 and TP104/KY board (D-3, E-2) with a shorting clip.
2. Turn the power switch ON.

The LED test will start automatically, and the test patterns will appear successively on the display (Table 1).

(2) Operation button and mode select switch test

If an operation button is pressed or the mode select switch is operated after the completion of the LED test, the corresponding key No. (Table 2) will be displayed in real time.

[If two operation buttons are pressed simultaneously, the button that has the lower key number will be displayed. Likewise, if the mode select switches (two) are operated simultaneously, the switch that has the lower key number will be displayed.]



Key Number

LED test pattern Table 1.

7-segment LED	Mode LED	Display time
"888888"	ALL LEDs go out	2 sec.
" 8"	ALL LEDs go out	0.5 sec.
" 8 "	ALL LEDs go out	0.5 sec.
" 8 "	ALL LEDs go out	0.5 sec.
" 8 "	ALL LEDs go out	0.5 sec.
" 8 "	ALL LEDs go out	0.5 sec.
"8 "	ALL LEDs go out	0.5 sec.
" 8"	ALL LEDs go out	0.5 sec.
" 8 "	ALL LEDs go out	0.5 sec.
" 8 "	ALL LEDs go out	0.5 sec.
" 8 "	ALL LEDs go out	0.5 sec.
" 8 "	ALL LEDs go out	0.5 sec.
"8 "	ALL LEDs go out	0.5 sec.
"000000"	ALL LEDs go out	0.5 sec.
"111111"	ALL LEDs go out	0.5 sec.

7-segment LED	Mode LED	Display time
"222222"	ALL LEDs go out	1 sec.
"333333"	ALL LEDs go out	1 sec.
"444444"	ALL LEDs go out	1 sec.
"555555"	ALL LEDs go out	1 sec.
"666666"	ALL LEDs go out	1 sec.
"777777"	ALL LEDs go out	1 sec.
"888888"	ALL LEDs go out	1 sec.
"999999"	ALL LEDs go out	1 sec.
"AAAAAA"	ALL LEDs go out	1 sec.
"bbbbbb"	ALL LEDs go out	1 sec.
"CCCCCC"	ALL LEDs go out	1 sec.
"dddddd"	ALL LEDs go out	1 sec.
"EEEEEE"	ALL LEDs go out	1 sec.
"FFFFFF"	ALL LEDs go out	1 sec.
" "	ALL LEDs light	4 sec.
"------"	ALL LEDs go out	Until a key is pressed

Key number Table 2.

Operation button	Key No.	Mode select switch	Key No.
ITEM	11	REMOTO (AUDIO SELECT)	21
DATA	12	HiFi (AUDIO SELECT)	22
SHIFT	13	DATA SET	23
RESET	14	COUNTER (CTL)	24
EJECT	15	When the switch is in the HOUR METER or NORMAL position.	26

2-13-5. NOVRAM Setting Mode

Correct the center value of the tracking control so that it coincides with the data set at the factory.

Caution :

Use this mode only after replacing the tracking control volume of the TR-68A board.

• Mode setting

1. Set No. 1 switch of DIP switch (S101/SS board (J-9)) to ON.
2. Short TP107/SS board (E-9) and GND with a shorting clip.

• NOVRAM setting

1. Set the tracking control volume to the center click position, then turn the power switch ON.
2. Wait for at least 15 seconds, then turn the power switch OFF again.
3. Remove the shorting clip, and set No.1 switch of S101 to OFF.

SECTION 3
PERIODIC CHECK AND MAINTENANCE

It is recommended that you carry out the following periodic checks and maintenance in order to obtain good performance and ensure a long life for the unit and tape. Use the hourmeter value displayed on the front panel as a guide for determining the check timing.

3-1. MAINTENANCE AFTER REPAIRS

Carry out the following maintenance after repair without regard to the operational hours of the unit.

(1) Cleaning Rotary Upper Drum
Press a cleaning cloth moistened with cleaning fluid lightly against Rotary Upper Drum and turn the Rotary Upper Drum slowly counterclockwise by means of a hand.

Note : Never turn the Drum by means of the unit is switched. Never turn it clockwise by means of a hand. If cleaning head chip, never move the cleaning cloth in vertical direction. You damage the head chip.

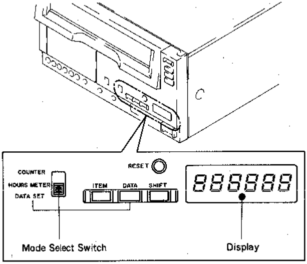
(2) Cleaning the tape run system (See drawing next page.)
Clean the tape run system (guides TG-1 to TG-9, RVS guide, capstan shaft, pinch roller, audio head, and FE head) with a cleaning piece moistened with cleaning fluid.

(3) Cleaning the drive system
Clean the surface of the reel table with a cleaning piece moistened with cleaning fluid.

3-2. HOURS METER

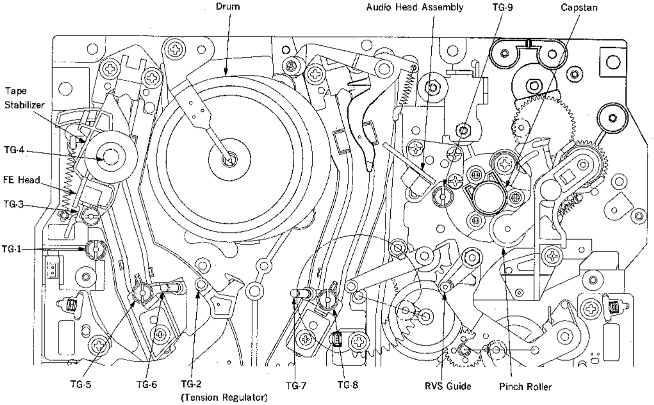
The front panel display of this VTR can display the period that the upper drum has been rotating.

- Method of displaying hourmeter
  When the mode select switch on the front panel is set to "HOURS METER", the period during which the upper drum has been rotating will appear on the display.



3-3. PERIODIC CHECK

Carry out periodic checks and maintenance according to operational hours of the unit.


Drum
Audio Head Assembly
TG-9
Capstan
Tape Stabilizer
TG-4
FE Head
TG-3
TG-1
TG-5
TG-6
TG-2 (Tension Regulator)
TG-7
TG-8
RVS Guide
Pinch Roller

Periodic Check Table

○ : Cleaning ◆ : Replacement ◇ : Checking □ : Greasing

Item			Hours of use (H) : Hour of Drum Rotation										Reference Section
	Part Name	Part No.	500	1,000	1,500	2,000	2,500	3,000	3,500	4,000	4,500	5,000	
Tape Run System	Tape Run surface	—	○	○	○	○	○	○	○	○	○	○	—
	(Note 1) Pinch Roller Block Ass'y	A-6750-279-D	○	○	○	◆/□	○	○	○	◆/□	○	○	4-12
	Audio Head Ass'y	A-6736-092-A	○	○	○	○	○	○	○	◆	○	○	4-10
	Guide Roller Ass'y	X-3165-337-1								◆			4-25,4-27
	Shaft Ground Ass'y	X-3165-584-1								◆			4-4
	FE Head	1-543-695-11	○	○	○	○	○	○	○	◆	○	○	4-8
	Capstan Motor (U-26A)	8-835-350-02	○	○	○	○	○	○	○	◆	○	○	4-30
	Upper Drum Ass'y (DZR-30-R)	8-848-569-02	○	◆	○	◆	○	◆	○		○	◆	4-4
	Drum Ass'y (DZH-30B-R)	8-848-588-11	○	○	○	○	○	○	○	◆	○	○	4-5
Drive System	Brake Arm (S) Ass'y	X-3165-330-3								◆			4-18
	Brake Arm (T) Ass'y	X-3165-331-2								◆			4-18
	Reel Table Ass'y	X-3165-345-1				○				○			4-17
	Cleaning Roller Ass'y	X-3743-515-4				◆				◆			4-3
	Reel Moter (SRV-0201A)	8-835-432-01								◆			4-19
	(Note 1) Loading Gear (Right) Ass'y	A-6750-281-A				□				□			4-22
	(Note 1) Worm Gear (Cam Motor Ass'y)	3-733-395-01				□				□			3-5
	(Note 1) Worm Gear (Cassette Compartment)	3-736-100-01				□				□			3-5
	(Note 1) Shuttle Slide Surface	—				□				□			3-5
Check Performance	Abnormal-noise	—	◇	◇	◇	◇	◇	◇	◇	◇	◇	◇	—
	S side Tape Tension Measurement	—		◇		◇		◇		◇		◇	5-2,6-2
	Reel Table torque Measurement	—				◇				◇			5-1

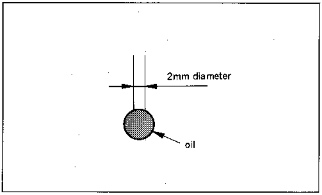
Note 1 : Grease the VTR according to sub-section 3-5.

Note 2 : The period shown in the table is not a guarantee value. The parts replacement period differs depending on the environment in which the VTR is used, so take the operating environment into consideration when drawing up a maintenance and check plan.

Note 3 : Be sure to clean the tape run surface after repairing it.

3-4. OILING

Oiling is described in ⌈SECTION 4. REPLACEMENT OF MAJOR PART⌋ for the applicable parts.



(1) Sony oil

- Be sure to use Sony oil. (If another brand of oil is used, the viscosity will be different, leading to trouble.)
  Sony oil : Sony part No. 7-661-018-18
- Be sure that the Sony oil used to lubricate the bearings is free of dirt and other foreign matter. (If the oil contains dirt, the bearings are liable to seize and also wear will be accelerated.)
- One drop of oil means a drop on the end of a rod of 2mm diameter (see figure).

3-5. GREASING

(1) Periodically grease the following parts.
- The face that slides against the cam of the pinch roller block ass'y (Fig. 1)
- The face that slides against the loading gear (right) ass'y (Fig. 2)
- The face that slides against the shuttle (left)/(right) ass'y (Fig. 3)
- Cam motor ass'y worm gear (Fig. 4)
- Cassette compartment worm gear (Fig. 5)

(2) Greasing
- Be sure to use the specified grease.

  MOLYKOTE grease EM-30LG (Color : green) :
  Sony part No. J-6090-014-A

or

  MOLYKOTE grease EM-30L (Color : Colorless) :
  Sony part No. 4-918-645-01

Apply a small quantity of grease to the areas marked in the figure (shaded areas and other areas indicated by the arrows).

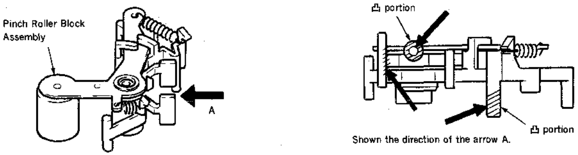
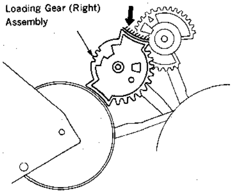
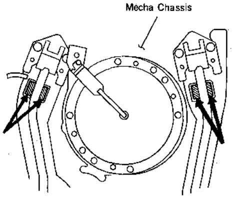
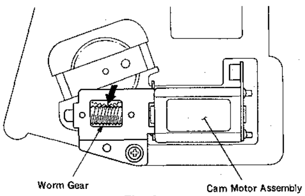
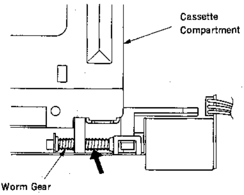

Pinch Roller Block
Assembly
A
凸 portion
凸 portion
Shown the direction of the arrow A.

Fig. 1


Loading Gear (Right)
Assembly
Fig. 2


Mecha Chassis
Fig. 3


Worm Gear
Cam Motor Assembly
Fig. 4


Cassette
Compartment
Worm Gear
Fig. 5

SECTION 4
REPLACEMENT OF MAJOR PART

- Refer to Section 2 for details of removing the externals and the printed circuit boards.
- Re-install the various parts in the opposite sequence to removal, while referring to "Precautions for Installation".

4-1. PREPARATIONS FOR REPLACING PARTS

- Do not load or thread a cassette when the VTR is inverted.

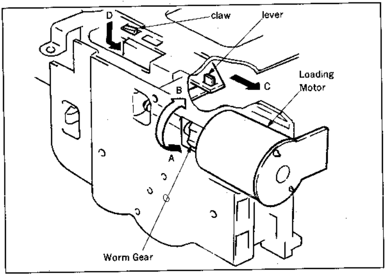
4-1-1. Method of loading and unloading the cassette compartment when the power is OFF

[Loading]

- Push the lever in the direction of arrow C and release the claw (direction of arrow D), then rotate the worm gear in the direction of arrow B with the fingers until loading is completed. (When a cassette tape is loaded in the cassette compartment, the claw will automatically release.)

[Unloading]

- Rotate the worm gear in the direction of arrow A with the fingers until unloading is completed.


D
claw
lever
Loading Motor
C
B
A
Worm Gear

4-1-2. Method of threading and unthreading when the power is OFF

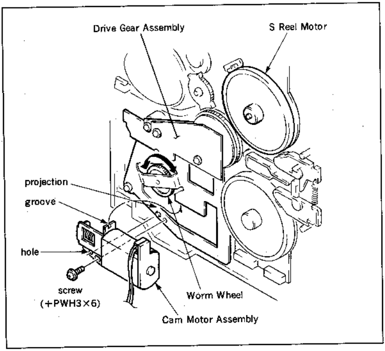
(1) Remove the screws, then remove the cam motor ass'y from the drive gear ass'y.

[Threading]

- Rotate the worm wheel with the fingers in the direction of arrow A until threading is completed.

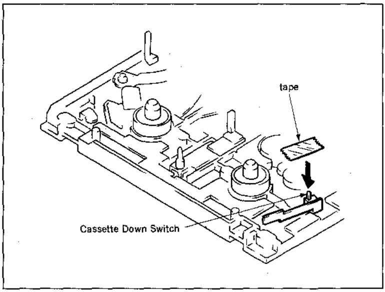
[Unthreading]

- Rotate the worm wheel with the fingers in the direction of arrow B until unthreading is completed.


Drive Gear Assembly
S Reel Motor
projection
groove
hole
screw
(+PWH3×6)
Worm Wheel
Cam Motor Assembly

4-1-3. Method of operating the VTR without a cassette compartment or cassette tape

(1) Remove the cassette compartment according to sub-section 2-2.
(2) Turn ON No. 8 switch of DIP switch S101/SS board (J-9). (This is to neutralize the tape top/end sensor function)
(3) Push down the CASSETTE DOWN switch with tape, etc.
(4) Turn the POWER switch ON.



In this condition, the VTR can be operated from the remote controller (RM-V200, RM-V100, etc.)
[When changing the mode from PLAY to FF or REW, go via the STOP mode.]

Note: Be sure to turn No. 8 switch OFF after completion of operation.

[Operating the VTR with the cassette compartment removed and a cassette tape loaded]

- Be sure to turn OFF No. 8 switch of DIP switch S101.
  (If the DIP switch is turned ON, the tape will not stop at the tape top/end, resulting in possible damage to the head tip and deformation of the tape guide.)

4-1-4. How to get the best engaging phase of gears when replacing.

A hole and/or a mark is added on each gear in this mechanism deck so that the engaging phases of the gears are easy to get when assembling. When replacing gear, install it as shown below, also refer the figure 1 and 2. (The replacement should be performed on the STOP mode.)

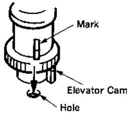
①	 Mark Elevator Cam Hole Match the mark of the elevator cam and the hole of the chassis. (Ref. 4-13)
②	Match the holes of the pressure cam gear and the chassis. (Ref. 4-13)
③	Match the holes of RVS cam gear and the chassis. (Ref. 4-14)
④	Match the holes of FR drive gear and the mode gear. (Ref. 4-16)

Figure of mechanism : STOP mode without the cassette compartment.

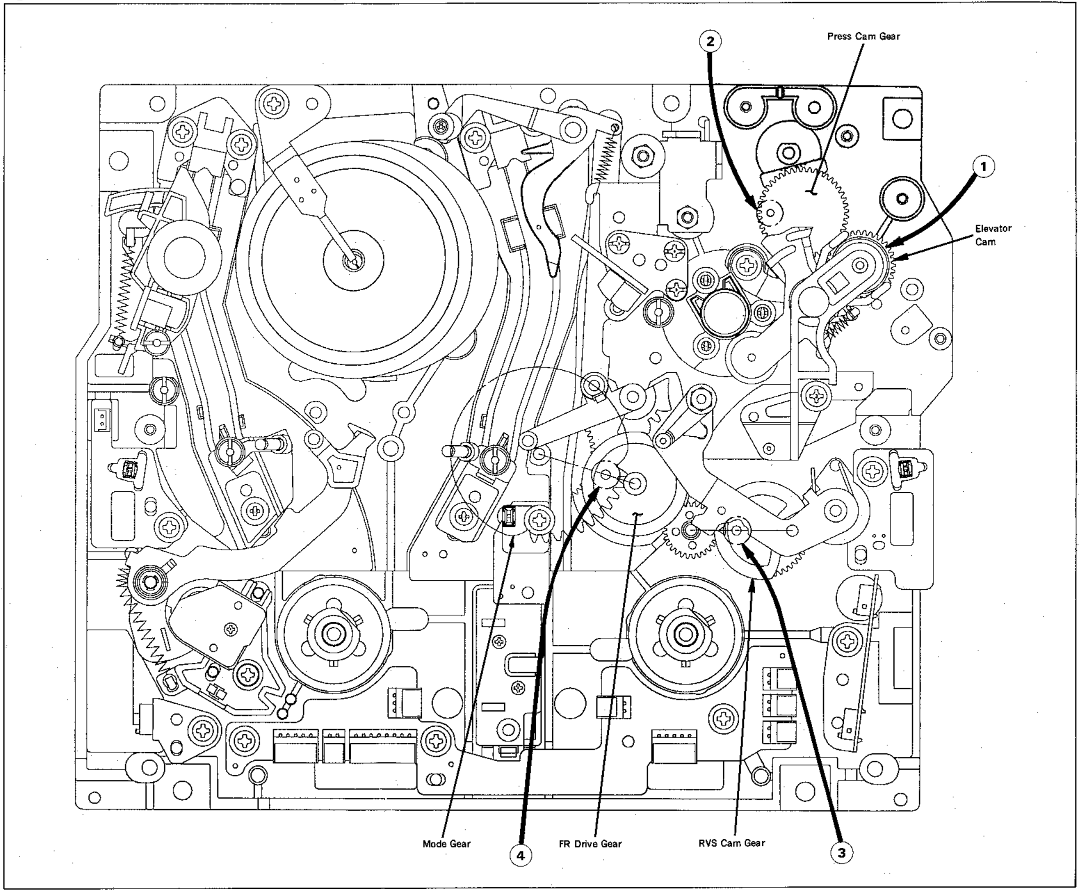

②
Press Cam Gear
①
Elevator Cam
Mode Gear
④
FR Drive Gear
RVS Cam Gear
③

Fig. 1 Top View

Figure of mechanism : STOP mode

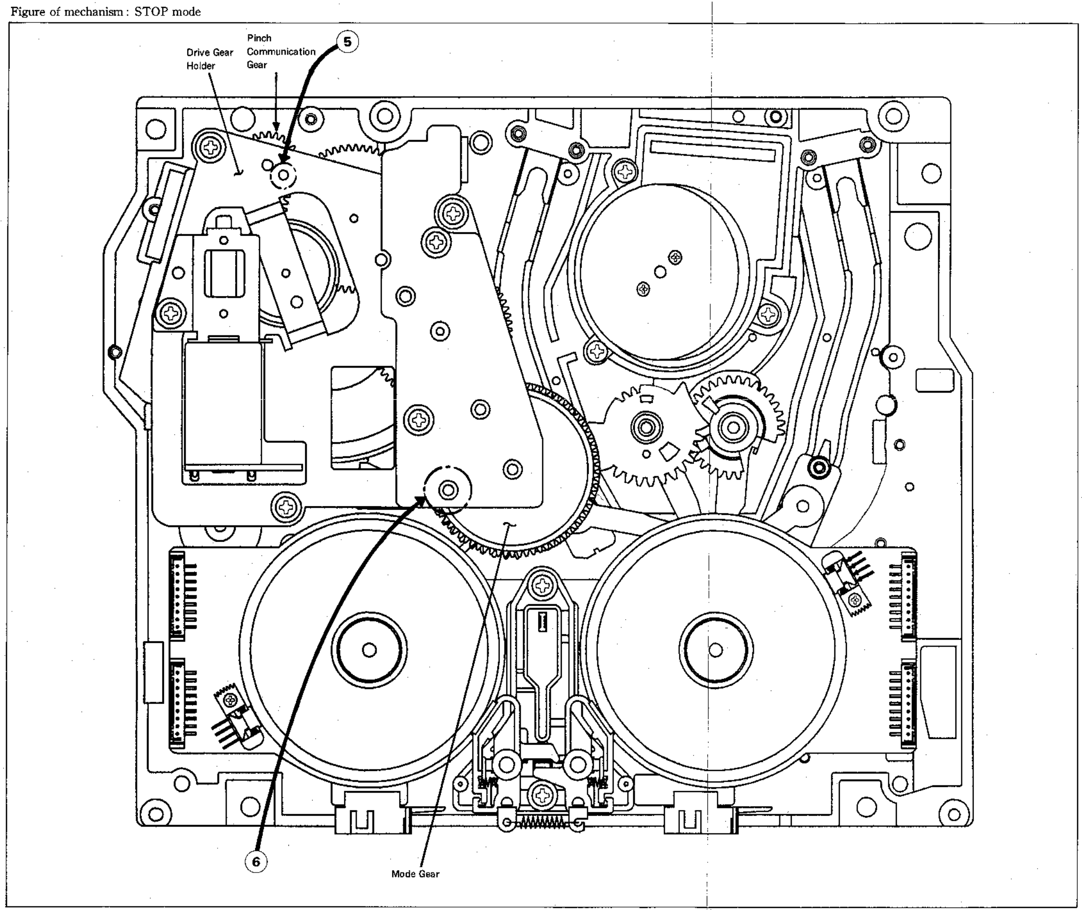

Drive Gear
Holder
Pinch
Communication
Gear
⑤
⑥
Mode Gear

Fig. 2 Bottom View

⑤	Match the holes of the pinch communication gear and the drive gear holder. (Ref. 4-20)
⑥	Match the holes of the mode gear and the drive gear holder. (Ref. 4-20)

4-2. CASSETTE COMPARTMENT (FL ASS'Y)

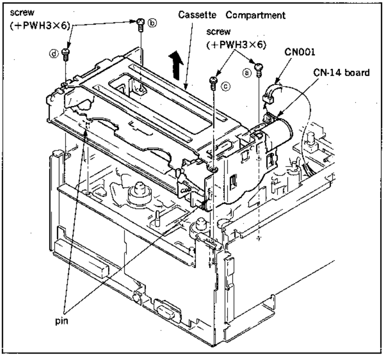
(1) Disconnect connector CN001 from the CM-14 board.

(2) Remove the four screws, and remove the cassette compartment (FL ass'y) in the direction of the arrow.

Precautions for installation

①Align the two pins of the cassette compartment with the holes in the base plate.

②Tighten the screws in order of steps ⓐ to ⓓ.


screw
(+PWH3×6)
ⓑ
ⓓ
Cassette Compartment
screw
(+PWH3×6)
CN001
ⓐ
ⓒ
CN-14 board
pin

4-2-1. Prevention lever

(1) Remove the spring.

(2) Remove the claw, and move the prevention lever in the direction of arrow A.

(3) Remove the prevention lever in the direction of arrow B.

Precautions for installation

①The shaft of the prevention lever must enter the groove in the drive arm (left). (Fig. 2)

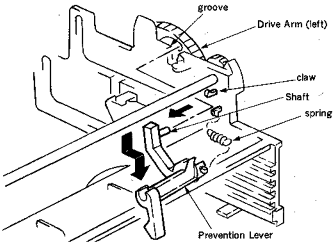

groove
Drive Arm (left)
claw
Shaft
spring
Prevention Lever

Fig. 1

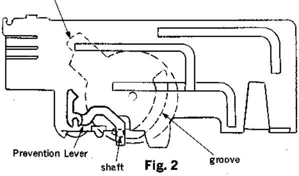

Drive Arm (left)
Prevention Lever
shaft
groove

Fig. 2

4-2-2. Loading motor, worm gear (FL), worm wheel (FL) and worm retainer

(1) Remove the four claws, then remove the gear cover ass'y. (Fig. 1)
(2) Remove the stop washer 3, then pull out the worm wheel (FL). (Fig. 2)
(3) Remove the two screws, then remove the loading motor. (Fig. 2)
(4) Remove the worm gear (FL) and the worm retainer. (Fig. 2)

Precautions for installation

①To install the gear cover ass'y, obtain a shaft of 2mm diameter and length of at least 30mm.
Pass the shaft through the holes in the gear cover ass'y, worm wheel (FL), drive arm (right) ass'y and right side plate, and engage the gear cover ass'y with the claw.

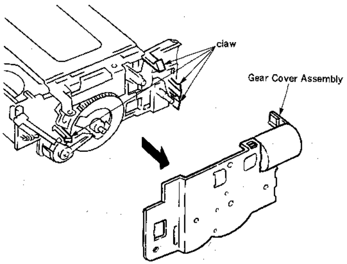

claw
Gear Cover Assembly

Fig. 1

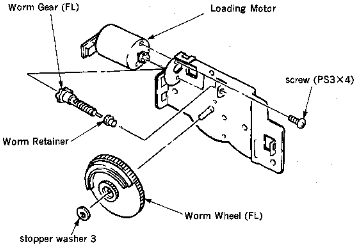

Worm Gear (FL)
Loading Motor
screw (PS3×4)
Worm Retainer
Worm Wheel (FL)
stopper washer 3

Fig. 2

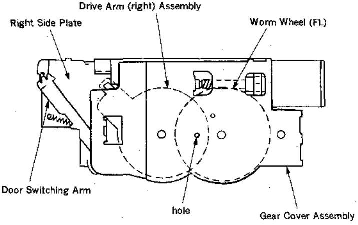
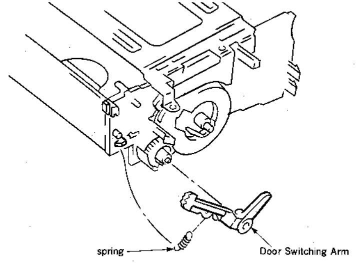

Drive Arm (right) Assembly
Right Side Plate
Worm Wheel (FL)
Door Switching Arm
hole
Gear Cover Assembly

Fig. 3

4-2-3. Door switching arm

(1) Remove the spring.
(2) Pull out the door switching arm.


spring
Door Switching Arm

4-3. BC ROLLER ASS'Y

(1) Remove the spring from the notch in the ACE head base.
(2) Remove the stop washer (4 mm dia.), then remove the BC roller ass'y. (Fig. 1)

Precautions for installation

①Ensure that the opening of the hook is uppermost. (Fig. 2)
②Take care not to scratch the drum.
③Install the BC roller ass'y in such a way that the extremity enters the part of the shuttle holder indicated by the arrow in Fig. 2.

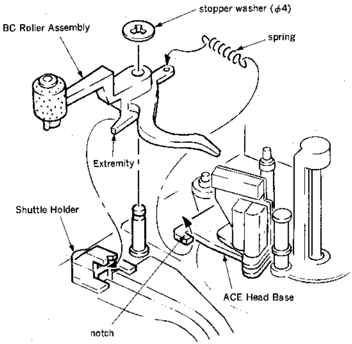

stopper washer (ϕ4)
BC Roller Assembly
spring
Extremity
Shuttle Holder
ACE Head Base
notch

Fig. 1

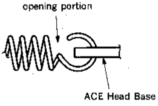

opening portion
ACE Head Base

Fig. 2

4-4. UPPER DRUM ASS'Y

Tools :

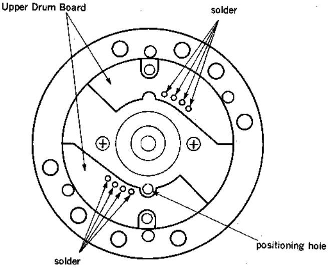
Alignment tape (KRV-4821PSA or KRV-4821PS or JVC-MH-2)
X value adjustment tool (J-6380-710-A)
Box screwdriver (width 5.5mm)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Oscilloscope
Connecting cable
VHS cassette tape (T-160 and T-120)

(1) Remove the screw, then remove the shaft ground ass'y.
(2) Unsolder the eight points on the upper drum board shown in Fig. 1.
(3) Remove the two screws, then remove the upper drum ass'y.

Precautions for installation

①Do not touch the head tip and the contact of the shaft ground ass'y with the fingers or a tool.
②Clean the surface of the drum shaft that touches the contact of the shaft ground ass'y, using cleaning fluid.
③Install the contact of the shaft ground ass'y at roughly the center of the drum shaft.
④Align the locating hole of the upper drum ass'y with this of the lower drum ass'y, then install the upper drum ass'y.
⑤The tightening torque for installing the upper drum ass'y must be 590×10^{-3} N·m (6kg·cm).

[**Adjustment after replacing the upper drum ass'y**]
- See next page.


Upper Drum Board
solder
solder
positioning hole

Upper Drum Assembly (Top View)

Fig. 1

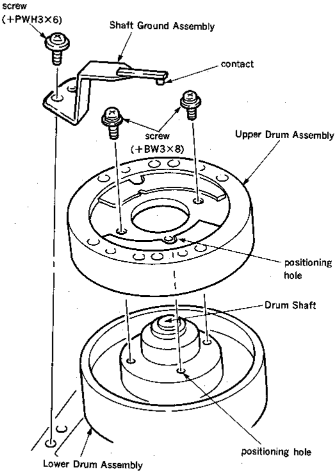
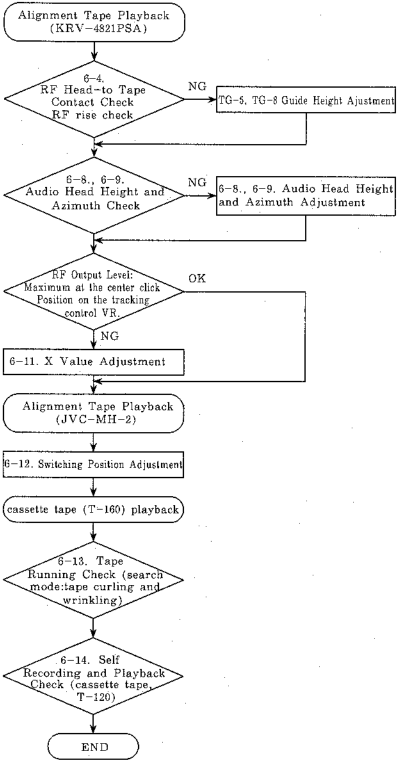

screw
(+PWH3×6)
Shaft Ground Assembly
contact
screw
(+BW3×8)
Upper Drum Assembly
positioning hole
Drum Shaft
positioning hole
Lower Drum Assembly

Fig. 2

[Adjustment after replacing the upper drum ass'y]

- Refer to Section 6, perform the Tape Run Alignment.



Alignment Tape Playback (KRV-4821PSA)
6-4. RF Head-to Tape Contact Check RF rise check
NG
TG-5, TG-8 Guide Height Ajustment
6-8., 6-9. Audio Head Height and Azimuth Check
NG
6-8., 6-9. Audio Head Height and Azimuth Adjustment
RF Output Level: Maximum at the center click Position on the tracking control VR.
OK
NG
6-11. X Value Adjustment
Alignment Tape Playback (JVC-MH-2)
6-12. Switching Position Adjustment
cassette tape (T-160) playback
6-13. Tape Running Check (search mode:tape curling and wrinkling)
6-14. Self Recording and Playback Check (cassette tape, T-120)
END

4-5. DRUM ASS'Y

Tools :

Alignment tape (KRV-4821PSA or KRV-4821PS or JVC-MH-2)
X value adjustment tool (J-6380-710-A)
Box screwdriver (width 5.5mm)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Oscilloscope
Connecting cable
VHS cassette tape (T-160 and T-120)

(1) Remove the drum harness from the RP board. (Fig. 1)
(2) Remove the screw, then remove the shaft ground ass'y. (Fig. 2)
(3) Disconnect connector CN604 (Fig. 2) from the drum ass'y.
(4) Remove the three screws, then remove the drum ass'y. (Fig. 2)

Precautions for installation

①Do not touch the head tip and the contact of the shaft ground ass'y with the fingers or a tool.
②Clean the following parts with cleaning fluid.
- The surface of the drum shaft that touches the ground contact
- The mounting faces of the drum ass'y and the chassis.
- The surface of the drum ass'y over which the tape travels

③Align the holes (two) in the drum ass'y with the pins (two) on the chassis, then install the drum ass'y.
④The tightening torque of the mounting screws of the drum ass'y must be 392×10^{-3} to 490×10^{-3} N•m (4 to 5kg•cm).
⑤Connect the drum harness to the RP board while being careful of the direction of the terminals.

[Adjustment after Replacing the Drum Ass'y]
See sub-section 4-4. [Same as the method of performing adjustment after replacing the upper drum ass'y]

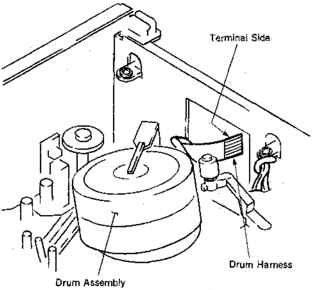

Terminal Side
Drum Harness
Drum Assembly

Fig. 1

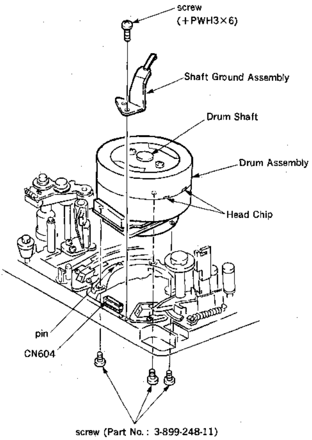

screw
(+PWH3×6)
Shaft Ground Assembly
Drum Shaft
Drum Assembly
Head Chip
pin
CN604
screw (Part No. : 3-899-248-11)

Fig. 2

4-6. TG-1 GUIDE

Tools :

Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89mm)
Remote controller (RM-V100 or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Loosen the set screw by inserting the hex wrench into the hole in the chassis (left). (Fig. 1)
(3) Rotate the TG-1 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

[Installation and height adjustment]

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the stamped L1 face upward, then place it against the TG-1 guide from the direction shown in the drawing, and tighten the set screw until the lower flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3)
[Set screw tightening torque : 78×10^{-3} to 98×10^{-3} N•m (0.8 to 1kg•cm)]
(6) Turn the flange of the guide with the guide adjustment screwdriver until the required specification is satisfied. (Fig. 3)
(7) Perform tape run adjustment of section 6.

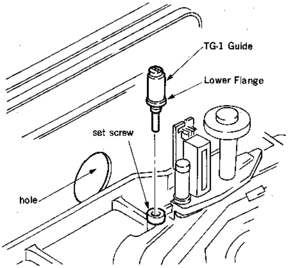

TG-1 Guide
Lower Flange
set screw
hole

Fig. 1

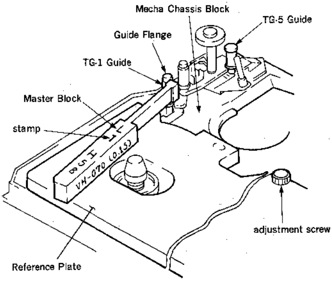
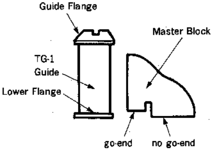

Mecha Chassis Block
TG-5 Guide
Guide Flange
TG-1 Guide
Master Block
stamp
L1
VH-070 (0.15)
adjustment screw
Reference Plate

Fig. 2


Guide Flange
Master Block
TG-1 Guide
Lower Flange
go-end
no go-end

Spec. :
The height of the lower flange must pass at the go-end of the master block and stop at the no go-end.

Fig. 3

4-7. TENSION REGULATOR ASS'Y (TG-2 GUIDE) AND STD ASS'Y

Tools :
Oscilloscope
Tentelometer (T2-H7-UMC)
Digital voltmeter
VHS cassette tape (T-120)
Sony oil (7-661-018-18)
Remote controller (RM-V100 or RM-V200)
Locking compound

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Disconnect connector CN657Y from the HN board.
(3) Remove the spring from the STD ass'y.
(4) Remove stop washer 2.3 and also the screw.
(5) Remove the tension regulator ass'y and STD ass'y together.
(Take care not to lose the poly-washer.)

Precautions for installation

①Clean the shaft with cleaning fluid, and apply 1/2 a drop of Sony oil. (Fig. 1)
②Insert the slit arm of the tension regulator ass'y into the slit in the STD ass'y, then install the resulting ass'y on the shaft. (Fig. 1)
③Align the U groove and longitudinal hole of the STD ass'y with bosses **a** on the chassis (Fig. 1), then install the STD ass'y in such a way that the adjustment groove comes to a point mid-way between bosses **b**. (Fig. 2)

[**Adjustment after replacement**]

Mechanical adjustment of position of tension regulator ass'y

(1) Connect the oscilloscope as follows.
CH-1 (DC range) : TP301/SS board (C-9)
(2) Turn ON No. 8 switch of DIP switch S101/SS board (J-9). (Fig. 3)
(3) Keep the cassette down switch pressed down with finger. (Fig. 3)
(4) Turn ON the POWER switch.
(5) Press the PLAY button of the remote controller for the threading completion mode (rotate the drum).
(6) Remove a finger from the cassette down switch.

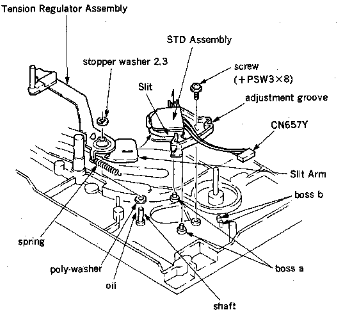

Tension Regulator Assembly
STD Assembly
stopper washer 2.3
screw
(+PSW3×8)
Slit
adjustment groove
CN657Y
Slit Arm
boss b
spring
poly-washer
oil
boss a
shaft

Fig. 1

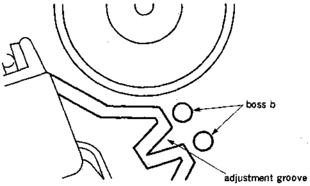

boss b
adjustment groove

Fig. 2

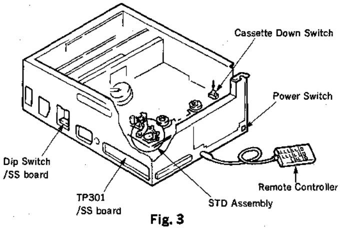

Cassette Down Switch
Power Switch
Dip Switch
/SS board
TP301
/SS board
Remote Controller
STD Assembly

Fig. 3

(7) Loosen the screw of the STD ass'y by about 90°.

(8) Insert a screwdriver into the position shown in Fig. 4, then move the STD ass'y in the direction of arrows A and B, and set it to the position where the DC voltage of TP301 is minimum.

(9) Move the STD ass'y slightly in the direction of arrow C, and tighten the screw until the DC voltage of TP301 is within the specification range. (Fig. 4)

(10) Confirm that when the tension regulator ass'y is moved in the direction of the arrow D, the DC voltage of TP301 increases in direct proportion. (Fig. 5)

(11) Press the STOP button of the remote controller for the un-threading completion mode.

(12) Turn OFF No. 8 switch of the DIP switch.

(13) Smear the screw of the STD ass'y with locking compound. (Fig. 4)

Tape tension adjustment

(14) Perform tape tension adjustment according to sub-section 6-2.

Tape run adjustment

(15) Perform tape run adjustment of section 6.

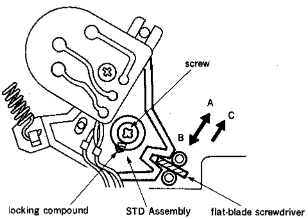
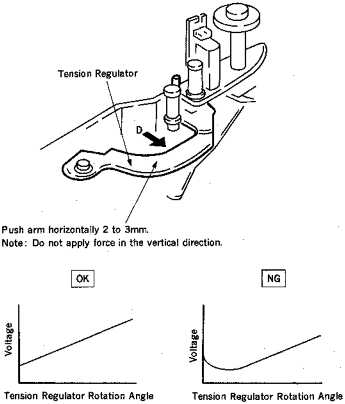

screw
A
C
B
locking compound
STD Assembly
flat-blade screwdriver

Fig. 4

Spec. :
DC voltage of TP301
min. to min.+0.2V


Tension Regulator
D
OK
NG
Voltage
Tension Regulator Rotation Angle
Voltage
Tension Regulator Rotation Angle

Push arm horizontally 2 to 3mm.
Note: Do not apply force in the vertical direction.

Fig. 5

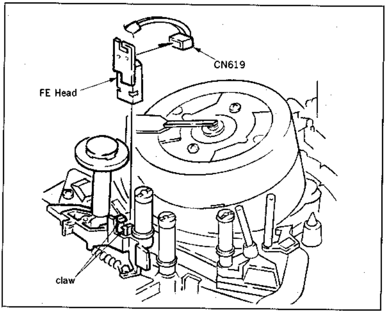
4-8. FE HEAD

(1) Disconnect connector CN619 from the head board.

(2) Remove the two claws, then remove the FE head.

Precaution for installation

①Push in the FE head until the two claws lock into place.


CN619
FE Head
claw

4-9. TAPE STABILIZER ASS'Y (TG-4 GUIDE) AND TG-3 GUIDE

Tools :

Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Remote controller (RM-V100 or RM-V200)
Sony oil (7-661-018-18)

(1) Remove the cassette compartment according to sub-section 4-2.

(2) Remove the FE head according to sub-section 4-8.

(3) Remove the tension coil spring.

(4) Remove stop washer 1.5, then remove the compression coil spring.

(5) Remove the tape stabilizer ass'y from the chassis.

Tape stabilizer (TG-4 guide)

(6) Remove the three claws, then remove the TS shaft retainer.

(7) Remove the stop ring, then remove the tape stabilizer.

TG-3 guide

(8) Turn the TG-3 guide counterclockwise with a guide adjustment screwdriver, and remove it.

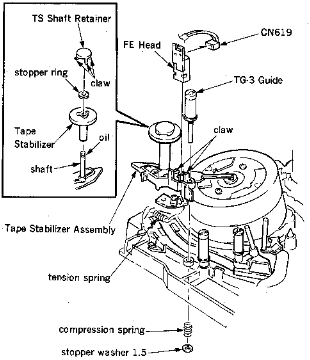

TS Shaft Retainer
stopper ring
claw
Tape Stabilizer
oil
shaft
FE Head
CN619
TG-3 Guide
claw
Tape Stabilizer Assembly
tension spring
compression spring
stopper washer 1.5

Fig. 1

Precautions for installation

①Clean the mounting shaft of the tape stabilizer with cleaning fluid, then apply 1/3 of a drop of Sony oil.

②Install the TG-3 guide to the height shown in Fig. 2.

[Adjustment after replacement]

TG-3 guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)

(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.

(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

(5) Set the master block with the stamped L3 face upward, then place it against the TG-3 guide from the direction shown in the drawing, and confirm that the height of the lower flange satisfies the specification. (Figs. 3 and 4)

If the specification is not satisfied

(6) Turn the flange of the TG-3 guide with the guide adjustment screwdriver.

(7) Perform tape run adjustment of section 6.

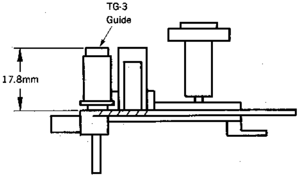

TG-3
Guide
17.8mm

Fig. 2

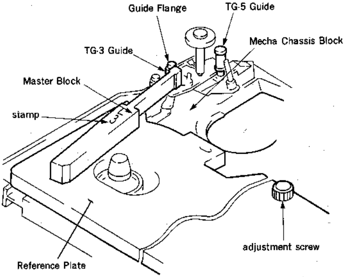

Guide Flange
TG-5 Guide
Mecha Chassis Block
TG-3 Guide
Master Block
stamp
adjustment screw
Reference Plate

Fig. 3

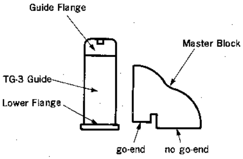

Guide Flange
Master Block
TG-3 Guide
Lower Flange
go-end
no go-end

Fig. 4

Spec.:
The height of the lower flange must pass at the go-end of the master block and stop at the no go-end.

4-10. AUDIO HEAD ASS'Y

Tools :
Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Box screwdriver (width 5.5mm)
Thickness gauge (9-911-053-00)
Remote controller (RM-V100 or RM-V200)
MOLYKOTE grease EM-30LG (J-6090-014-A)
or EM-30L (4-918-645-01)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Disconnect connectors CN616, 617 and 618 from the AH board.
(3) Remove the tension coil spring.
(4) Remove the AC adjustment screw.
(5) Remove the adjustment nut, then pull out the audio head ass'y.

Precautions for installing the audio head

①Insert part **a** of the torsion coil spring into the hole in the chassis, then insert part **b** into the bend in the ACE base ass'y. (Fig. 1)
②Smear grease onto the part **c** that the ACE base ass'y touch the AC adjustment screw. (Fig. 1)
③Install the audio head ass'y and the AC adjustment screw to the height shown in Fig. 3.

[Adjustment after replacement]
Audio head zenith adjustment
(1) Push the PLAY button of the remote controller for the threading completion mode. (See sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the stamped L1 face upward, then place it gently against the audio head from the direction shown in the drawing (Fig. 2).

Caution : Take care not to damage the surface of the audio head.

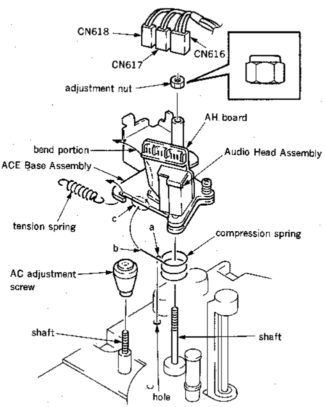

CN618
CN616
CN617
adjustment nut
AH board
bend portion
Audio Head Assembly
ACE Base Assembly
tension spring
c
a
compression spring
b
AC adjustment screw
shaft
shaft
hole

Fig. 1

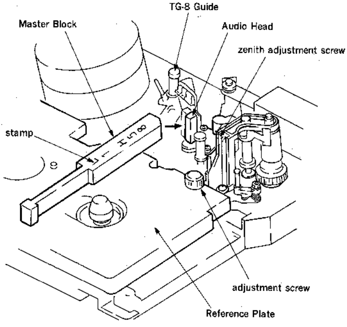

TG-8 Guide
Master Block
Audio Head
zenith adjustment screw
stamp
adjustment screw
Reference Plate

Fig. 2

(6) Tilt the head with the zenith adjustment screw until gap A satisfies the specification. (Fig. 4)

Audio head azimuth adjustment

(7) Change the orientation of the master block and place it against the side of the audio head from the direction shown in the drawing. (Fig. 5)

(8) Turn the azimuth adjustment screw so that gaps B and C satisfy the specification. (Fig. 6)

(9) Confirm that the zenith specification is satisfied.

If the specification is not satisfied

(10) Repeat the zenith and azimuth adjustments until the relevant specifications are satisfied.

Tape run adjustment

(11) Perform tape run alignments of section 6.

- Upon completion of adjustment, smear locking compound onto the AC adjustment screw, zenith adjustment screw and the azimuth adjustment screw. (Fig. 7)

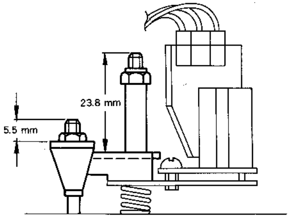


Fig. 3

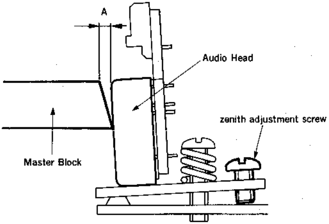

A
Audio Head
zenith adjustment screw
Master Block

Fig. 4

Spec. :
gap A=0 to 0.05 mm

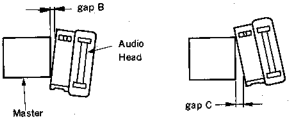

gap B
Audio Head
Master Block
gap C

Fig. 6

Spec. :
gap B, C=0 to 0.05 mm

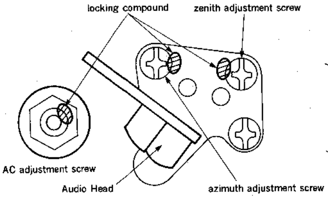

locking compound
zenith adjustment screw
AC adjustment screw
Audio Head
azimuth adjustment screw

Fig. 7

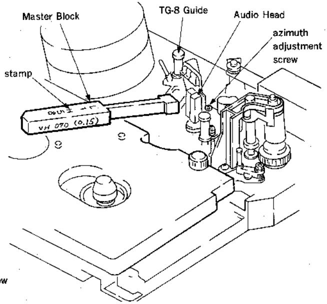

Master Block
TG-8 Guide
Audio Head
azimuth adjustment screw
stamp
VH 070 (0.15)

Fig. 5

4-11. TG-9 GUIDE

Tools :

Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89 mm)
Remote controller (SVRM-100, RM-V100, or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Loosen the set screw by the hex wrench. (Fig. 1)
(3) Rotate the TG-9 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

[Installation and height adjustment]

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)
(2) Clean the mounting face of the reference plate and the four mounting points on the chassis with cleaning fluid.
(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
(5) Set the master block with the stamped L1 face upward, then place it against the TG-9 guide from the direction shown in the drawing, and tighten the set screw until the lower flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3)
(Set screw tightening torque: 78×10^{-3} to 98×10^{-3} N•m (0.8 to 1 kg•cm))
(6) Turn the flange of the guide with the guide adjustment screwdriver until the required specification is satisfied. (Fig. 3)
(7) Perform tape run alignments of section 6.

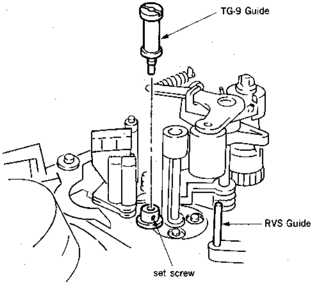

TG-9 Guide
RVS Guide
set screw

Fig. 1

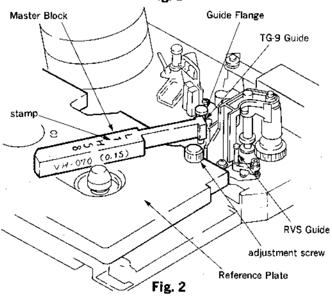

Master Block
Guide Flange
TG-9 Guide
stamp
L1
58
VH-070 (0.15)
RVS Guide
adjustment screw
Reference Plate

Fig. 2

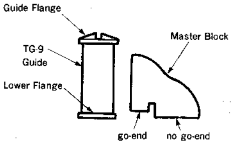

Guide Flange
TG-9 Guide
Lower Flange
Master Block
go-end
no go-end

Fig. 3

Spec.:
The height of the lower flange must pass at the go-end of the master block and stop at the no go-end.

4-12. PINCH ROLLER BLOCK ASS'Y AND ELEVATOR CAM

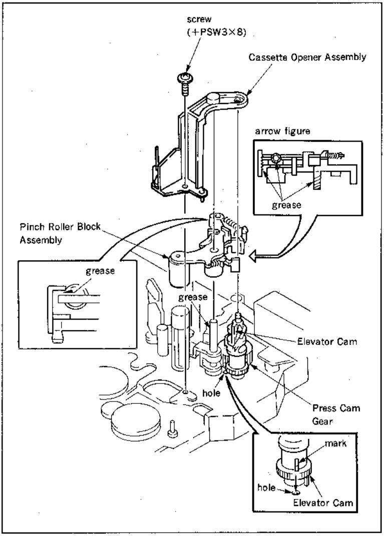
Tool :
MOLYKOTE grease EM-30LG (J-6090-014-A)
or MOLYKOTE grease EM-30L (4-918-645-01)

(1) Remove the screw, then remove the cassette opener ass'y.
(2) Pull out the pinch roller block ass'y.
(3) Pull out the elevator cam.

Precautions for installation

①Align the mark on the elevator cam with the hole in the chassis, then engage the elevator cam with the press cam gear, and install it on the shaft. (As a result, the engagement phases of the elevator cam and press cam gear will coincide.)

②Smear the parts of the pinch roller block ass'y indicated by the arrows (five) with MOLYKOTE grease.


screw
(+PSW3×8)
Cassette Opener Assembly
arrow figure
grease
Pinch Roller Block Assembly
grease
grease
Elevator Cam
hole
Press Cam Gear
mark
hole
Elevator Cam

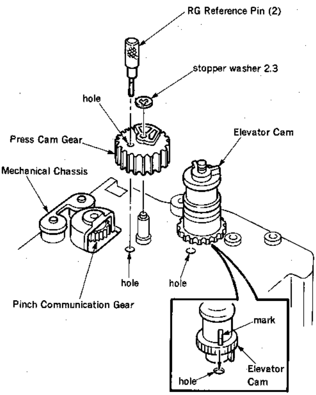
4-13. PRESS CAM GEAR

Tool:
RG reference pin (2) (J-6380-050-A)

(1) Remove the pinch roller block ass'y according to sub-section 4-12.
(2) Remove stop washer 2.3, then remove the press cam gear.

Precautions for installation

①Pass RG reference pin (2) through the hole in the press cam gear. Next, align it with the hole in the chassis, then engage the press cam gear with the elevator cam and the pinch communication gear, and install it on the shaft.
(By aligning the holes, the engagement phases of the press cam gear, elevator cam and pinch communication gear will coincide.)
②The mark on the elevator cam shown in the figure must coincide with the hole in the chassis.


RG Reference Pin (2)
stopper washer 2.3
hole
Elevator Cam
Press Cam Gear
Mechanical Chassis
hole
hole
Pinch Communication Gear
mark
Elevator Cam
hole

4-14. RVS ARM ASS'Y (RVS GUIDE) AND RVS CAM GEAR

Tools :

RG reference pin (1) (J-6380-040-A)
Reference plate (J-6380-080-A)
Master block (J-6380-700-A)
Box screwdriver (width 5.5mm)
Remote controller (RM-V100 or RM-V200)
Sony oil (7-661-018-18)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the E ring, then pull out the RVS arm ass'y. (Fig. 2)
(3) Remove the adjustment nut, then remove the guide base ass'y and the compression coil spring. (Fig. 1)
(4) Remove stop washer 2.3, then pull out the RVS cam gear. (Fig. 2)

Precautions for installation

①Insert the projection on the guide base ass'y into the hole in the RVS arm, then install the guide base ass'y. (Fig. 1)

②Pass RG reference pin (1) through the hole in the RVS cam gear, then align it with hole B in the chassis, engage the RVS cam gear with the RVS relay gear, then install the gears on the shafts. (Fig. 2). Also, confirm that the hole in the press cam gear coincides with the hole in the chassis. (Refer to sub-section 4-13.)
(By aligning the hole in the gear, the engagement phases of the drive gears will coincide.)

③Clean the mounting shaft of the RVS arm ass'y with cleaning fluid, then apply 1/2 a drop of Sony oil. (Fig. 2)

④Insert part **a** of the torsion coil spring into hole A in the chassis, then insert part **b** into the bend in the RVS arm ass'y. (Fig. 2)

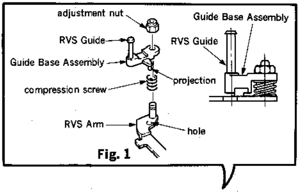

adjustment nut
Guide Base Assembly
RVS Guide
RVS Guide
Guide Base Assembly
projection
compression screw
RVS Arm
hole

Fig. 1

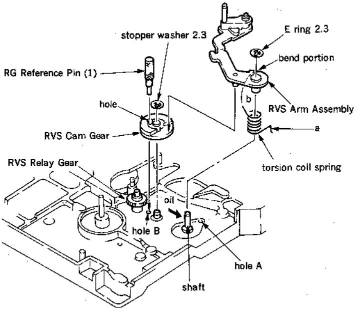

stopper washer 2.3
E ring 2.3
bend portion
RG Reference Pin (1)
b
hole
RVS Arm Assembly
a
RVS Cam Gear
RVS Relay Gear
torsion coil spring
oil
hole B
hole A
shaft

Fig. 2

[Adjustment after replacement]

RVS guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)

(2) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.

(3) Install the reference plate on the chassis. (Fig. 3) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

(5) Set the master block with the stamped L1 face upward, then place it against the RVS guide from the direction shown in the figure. (Fig. 3)

(6) Using a box screwdriver, turn the adjustment nut until the specification is satisfied. (Fig. 4)

(7) Perform tape run adjustment of section 6.

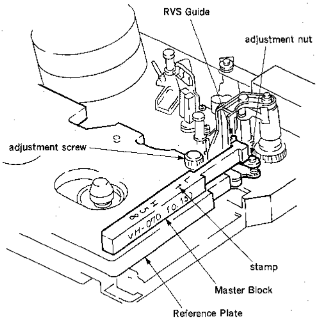

RVS Guide
adjustment nut
adjustment screw
stamp
Master Block
Reference Plate

Fig. 3

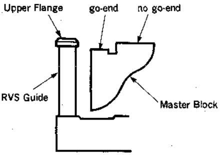

Upper Flange
go-end
no go-end
RVS Guide
Master Block

Fig. 4

Spec.:
The height of the upper flange must pass at the go-end of the master block and stop at the no go-end.

4-15. FR DRIVE GEAR AND RVS RELAY GEAR

Tools :

RG reference pin (1) (J-6380-040-A)
RG reference pin (2) (J-6380-050-A)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the RVS arm ass'y and the RVS cam gear according to sub-section 4-14.
(3) Remove each of stop washer 2.3, then remove the FR drive gear and the RVS relay gear. (Fig. 1)

Precautions for installation

Gear installation sequence

①Install the RVS relay gear on the shaft, taking care that it is facing the right direction. (Fig. 3)

②Pass RG reference pin (2) through the hole in the FR drive gear, then align it with the hole in the mode gear, engage the FR drive gear with the RVS relay gear, and install it on the shaft. (Fig. 1)

③Using RG reference pin (1), engage the RVS cam gear with the RVS relay gear, then install it on the shaft according to subsection 4-14. (Fig. 2) (By aligning the holes, the engagement phases of the drive gears will coincide.)

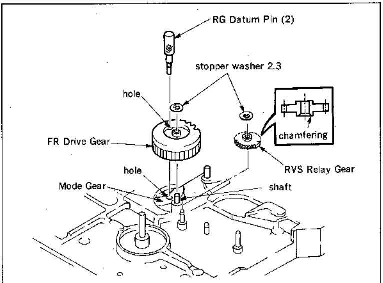

RG Datum Pin (2)
stopper washer 2.3
hole
chamfering
FR Drive Gear
hole
RVS Relay Gear
Mode Gear
shaft

Fig. 1

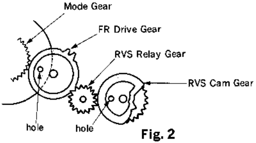

Mode Gear
FR Drive Gear
RVS Relay Gear
RVS Cam Gear
hole
hole

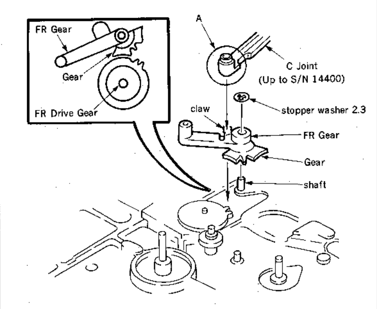
Fig. 2

4-16. FR GEAR (Up to S/N 14400)

(1) Remove the claw, then remove part A alone of the C joint. (Take care not to break the C joint.)
(2) Remove stop washer 2.3, then pull out the FR gear.

Precautions for installation

①Align the gear part of the FR gear with the position shown in Fig. 2.


FR Gear
Gear
FR Drive Gear
A
C Joint
(Up to S/N 14400)
claw
stopper washer 2.3
FR Gear
Gear
shaft

4-17. REEL TABLE ASS'Y

Tools :

Reference plate (J-6380-080-A)
Reel table height adjustment tool (J-6380-090-A)
Hex wrench screwdriver (width 1.5mm)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the set screw with the hex wrench.
(3) Pull out the reel table ass'y from the reel shaft.

[Reel table height adjustment]

(1) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
(2) Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
(3) Clean the top of the reference plate and the adjustment face of the reel table height adjustment tool with cleaning fluid.
(4) Set the reel table height adjustment tool with the stamped side upward, then install it on the reference plate. (Fig. 2)
(5) Perform adjustment so that the height of the S side reel table (or T side reel table) satisfies the specification at position **a**, then rotate the table 90° in the direction of the arrow, and perform adjustment so that the height of the reel table satisfies the specification at position **b**. (Figs. 2 and 3)

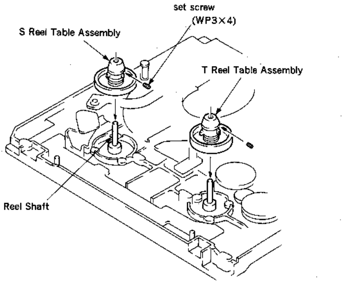

set screw
(WP3×4)
S Reel Table Assembly
T Reel Table Assembly
Reel Shaft

Fig. 1

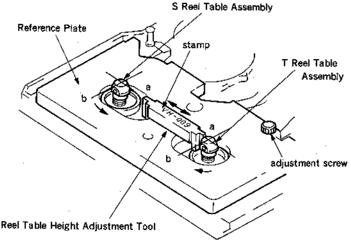

S Reel Table Assembly
Reference Plate
stamp
T Reel Table Assembly
a
b
a
b
adjustment screw
Reel Table Height Adjustment Tool

Fig. 2

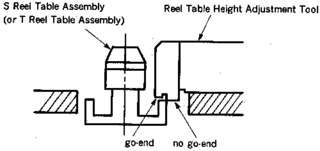

S Reel Table Assembly
(or T Reel Table Assembly)
Reel Table Height Adjustment Tool
go-end
no go-end

Fig. 3

Spec. :
The height of the S side (T side) reel table must pass at the go-end of the reel table height adjustment tool and stop at the no-go end.

4-18. REEL BRAKE ASS'Y

(1) Remove the cassette compartment according to sub-section 4-2.

(2) Remove the harness of the LE-80 board from the claw of the reel brake ass'y. (surface of chassis) (Fig. 1)

(3) Disconnect connector CN656W of the solenoid harness from the HN-160 board. (surface of chassis) (Fig. 1)

(4) Remove the two screws, then remove the reel brake ass'y. (back side of chassis) (Fig. 1)

(5) Remove the spring, then the claw of the M clamp, then remove the brake arm (S) ass'y and the brake arm (T) ass'y. (Fig. 2)

(6) Raise part A of the B slider in the direction of arrow B, then remove the claw from the iron core of the solenoid, and pull out the B slider in the direction of arrow C. (Fig. 2)

(7) Remove the two screws and two washers, then remove the solenoid. (Fig. 2)

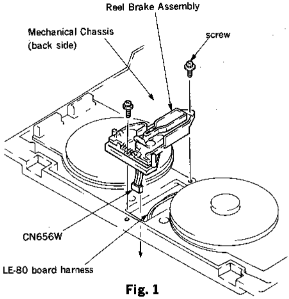

Reel Brake Assembly
Mechanical Chassis (back side)
screw
CN656W
LE-80 board harness

Fig. 1

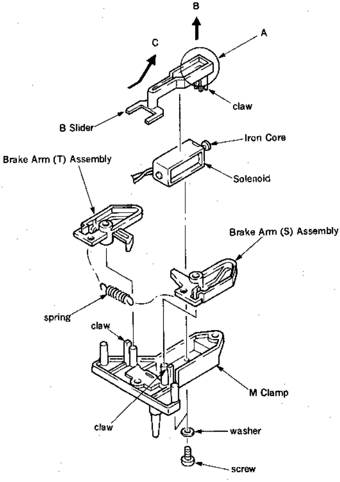

B
C
A
claw
B Slider
Iron Core
Brake Arm (T) Assembly
Solenoid
Brake Arm (S) Assembly
spring
claw
M Clamp
claw
washer
screw

Fig. 2

4-19. REEL MOTOR

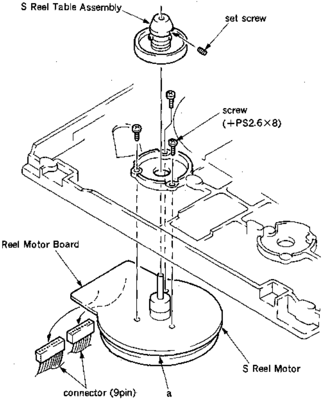
Tools :
Reference plate (J-6380-080-A)
Reel table height adjustment tool (J-6380-090-A)
Hex wrench screwdriver (width 1.5mm)

- The procedure of replacing the reel motor is the same for both the S side and the T side. Here, the procedure of replacing the S side reel motor is described.

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the S side reel table ass'y according to sub-section 4-17.
(3) Disconnect the two 9-pin connectors from the reel motor board.
(4) Remove the three screws, then remove the S side reel motor.

Note : Do not touch the outer periphery (a part) of the reel motor with the fingers.

[Adjustment after installation]
(1) Adjust the height of the S side reel table ass'y according to sub-section 4-17.


S Reel Table Assembly
set screw
screw
(+PS2.6×8)
Reel Motor Board
S Reel Motor
connector (9pin)
a

4-20. DRIVE GEAR ASS'Y

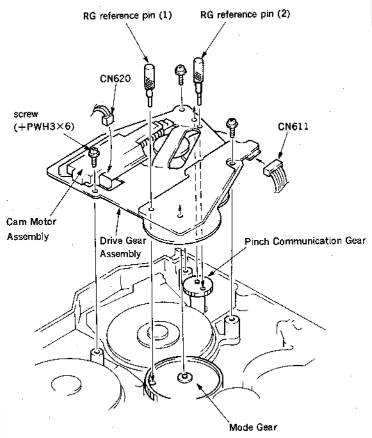
Tools:
RG reference pin (1) (J-6380-040-A)
RG reference pin (2) (J-6380-050-A)

(1) Disconnect connector CN611 from the PTC-41 board.
(2) Disconnect connector CN620 from the LD-35 board of the cam motor ass'y.
(3) Remove the three screws, then remove the drive gear ass'y.

Note: Take care not to rotate the mode gear and the pinch communication gear more than once, after removing the drive gear ass'y.

Precautions for installation

①Pass RG reference pin (1) and RG reference pin (2) through the holes in the drive gear ass'y shown in the figure, then align each of pins with the hole in the mode gear and communication gear, and install the drive gear ass'y.
(By aligning the hole in the gear, the engagement phases of the drive gears will coincide.)


RG reference pin (1)
RG reference pin (2)
CN620
screw
(+PWH3×6)
CN611
Cam Motor
Assembly
Drive Gear
Assembly
Pinch Communication Gear
Mode Gear

4-20-1. Cam motor ass'y

(1) Remove the screw, then remove the cam motor ass'y. (Fig. 1)

Precautions for installation

①Align the groove of the cam motor ass'y with part **a** of the drive gear ass'y. (Fig. 1)
②Align the hole in the cam motor ass'y with the projection on the drive gear ass'y. (Fig. 1)
③Set the cam motor parallel to the **b** face of the drive gear ass'y, then screw it fixed. (Fig. 2)

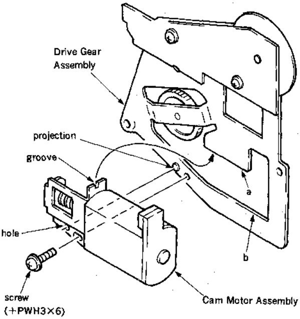

Drive Gear Assembly
projection
groove
a
hole
b
screw (+PWH3×6)
Cam Motor Assembly

Fig. 1

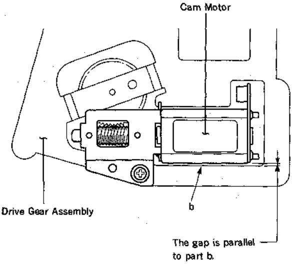

Cam Motor
Drive Gear Assembly
b
The gap is parallel to part b.

Fig. 2

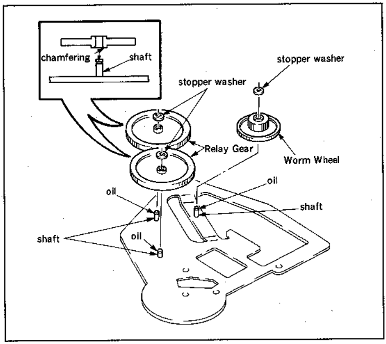
4-20-2. Relay gear and worm wheel

Tool :
Sony oil (7-661-018-18)

(1) Remove the stop washer, then remove the relay gear and the worm wheel.

Precautions for installation

①Clean the shafts with cleaning fluid, then apply 1/2 a drop of Sony oil.


chamfering
shaft
stopper washer
stopper washer
Relay Gear
Worm Wheel
oil
oil
shaft
shaft
oil

4-21. MODE GEAR ASS'Y

Tool :
RG reference pin (2) (J-6380-050-A)

(1) Remove the drive gear ass'y according to subsection 4-20.
(2) Remove the stop washer, then remove the mode gear ass'y from the shaft. (Fig. 1)

Precautions for installation

①Push the loading gear (right) in the direction of arrow A. Pass RG reference pin (2) through the hole in the mode gear ass'y, then align it with the ⋇ mark on the chassis, then engage the mode gear ass'y with the FR drive gear, and install it. (Figs. 1 and 2)
(By aligning the hole in the gear, the engagement phases of the mode gear ass'y and the FR drive gear will coincide.)
②Align the engagement phases of the gears, and install the drive gear ass'y according to subsection 4-20.

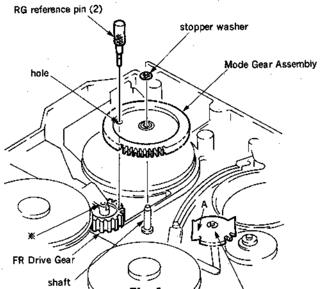

RG reference pin (2)
stopper washer
Mode Gear Assembly
hole
A
⋇
FR Drive Gear
shaft
Loading Gear (Right)

Fig. 1

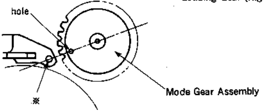

hole
Mode Gear Assembly
⋇

Fig. 2

4-22. LOADING GEAR (RIGHT) ASS'Y

Tool :
MOLYKOTE grease EM-30LG (J-6090-014-A)
or EM-30L (4-918-645-01)

(1) Remove the drive gear ass'y according to sub-section 4-20.
(2) Remove the mode gear ass'y according to sub-section 4-21.
(3) Rotate the gear part of the loading gear (right) by hand in the direction of the arrow to the position shown in Fig. 1.
(4) Remove the two E rings, then remove the loading gear (right) ass'y. (Fig. 2)

Note : Take care not to deform the arm of the loading gear (right) ass'y.

Precautions for installation

①Align the mark on the loading gear (left) with the center point between two teeth on the loading gear (right), then install the chassis shaft and the shaft of the shuttle (right). (Fig. 3)
②Smear a small amount of Sony grease to the part of the loading gear (right) ass'y indicated in the figure. (Fig. 2)
③Align the engagement phases of the mode gear ass'y and the drive gear ass'y ,then install the gear ass'ys, according to sub-section 4-21 and 4-20.

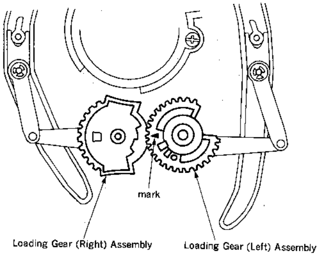

mark
Loading Gear (Right) Assembly
Loading Gear (Left) Assembly

Fig. 1

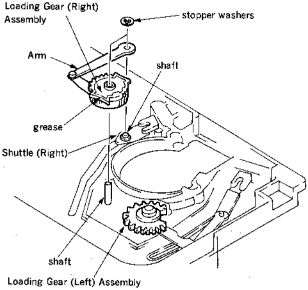

Loading Gear (Right) Assembly
stopper washers
Arm
shaft
grease
Shuttle (Right)
shaft
Loading Gear (Left) Assembly

Fig. 2

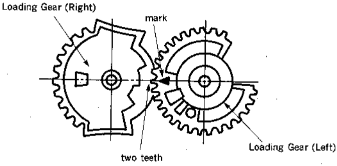

Loading Gear (Right)
mark
two teeth
Loading Gear (Left)

Fig. 3

4-23. LOADING GEAR (LEFT) ASS'Y

(1) Remove the cam motor ass'y according to sub-section 4-20-1. (Fig. 1)

(2) Rotate the worm wheel of the drive gear clockwise with the fingers until the loading gear (left) ass'y moves to the position shown in Fig. 2. (Figs. 1 and 2)

(3) Remove the two stop washers, then remove the loading gear (left) ass'y. (Fig. 3)

Note: Take care not to deform the arm of the loading gear (left) ass'y.

Precautions for installation

①Align the mark on the loading gear (left) with the center point between two teeth of the loading gear (right), then install the gears on the shaft of the chassis and the shaft of the shuttle (left). (Fig. 4)

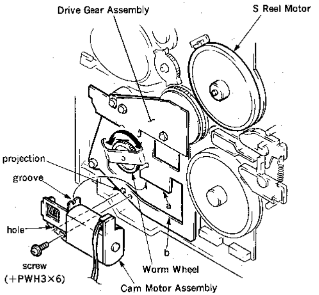

Drive Gear Assembly
S Reel Motor
projection
groove
hole
a
b
screw
(+PWH3×6)
Worm Wheel
Cam Motor Assembly

Fig. 1

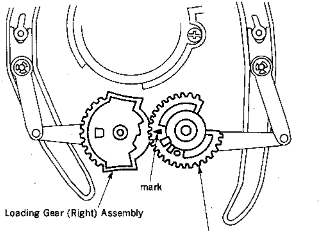

mark
Loading Gear (Right) Assembly
Loading Gear (Left) Assembly

Fig. 2

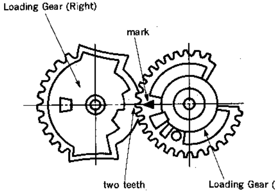

Loading Gear (Right)
mark
two teeth
Loading Gear (Left)

Fig. 4

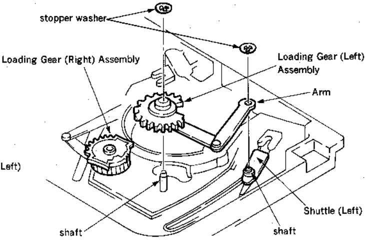

stopper washer
Loading Gear (Right) Assembly
Loading Gear (Left) Assembly
Arm
Shuttle (Left)
shaft
shaft

Fig. 3

4-24. SHUTTLE (RIGHT) ASS'Y

Tools :
Reference plate (J-6380-080-A)
Master block (J-6380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Remote controller (RM-V100 or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Refer to sub-section 4-23, then move the loading gear (right) ass'y to the position shown in Fig. 1.
(3) Remove the stop washer, then remove the arm of the loading gear (right) ass'y from the shaft of the shuttle plate ass'y. (Fig. 2)

Note: Take care not to deform the arm of the loading gear (right) ass'y.

(4) Remove the screw, then remove the shuttle (right) ass'y and the shuttle plate ass'y. (Fig. 3)

Note: Move the shuttle (right) ass'y in the unthreading end direction to ensure that it does not strike the drum ass'y, then remove it.

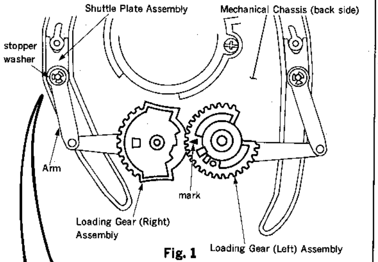

Shuttle Plate Assembly
Mechanical Chassis (back side)
stopper washer
Arm
mark
Loading Gear (Right) Assembly
Loading Gear (Left) Assembly

Fig. 1

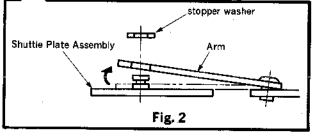

stopper washer
Shuttle Plate Assembly
Arm

Fig. 2

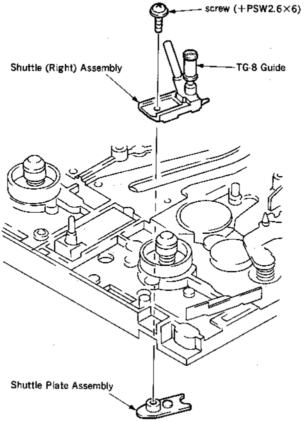

screw (+PSW2.6×6)
Shuttle (Right) Assembly
TG-8 Guide
Shuttle Plate Assembly

Fig. 3

Precautions for installation

①Put the screw as shown in Fig. 4 when installing the shattle (right) ass'y to the shattle plate ass'y.

[**Adjustment after replacement**]

TG-8 guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)

(2) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.

(3) Install the reference plate on the chassis. (Fig. 5) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

(5) Set the master block with the H10 stamped mark upward, then place it against the TG-8 guide from the direction shown in the figure. (Fig. 5)

(6) Using the guide adjustment screwdriver, turn the upper flange on the guide until the specification is satisfied. (Fig. 6)

(7) Perform tape run adjustment of section 6.

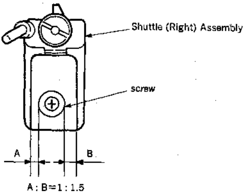

Shuttle (Right) Assembly
screw
A
B
A : B=1 : 1.5

Fig. 4

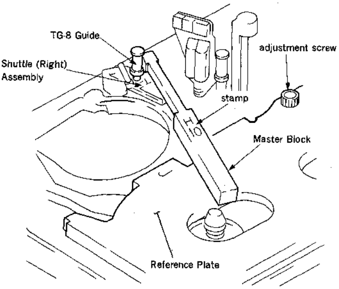

TG-8 Guide
Shuttle (Right) Assembly
adjustment screw
stamp
H10
Master Block
Reference Plate

Fig. 5

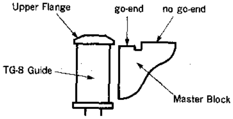

Upper Flange
go-end
no go-end
TG-8 Guide
Master Block

Fig. 6

Spec.:
The height of the upper flange must pass at the go-end of the master block and stop at the no go-end.

4-25. TG-8 GUIDE

Tools :

Reference plate (J-6380-080-A)
Master block (J-6380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89mm)
Remote controller (RM-V100 or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Loosen the set screw with a hex wrench. (Fig. 1)
(3) Rotate the TG-8 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

Precautions for installation

①Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.
②Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)
③Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.
④Set the master block with the H10 stamped mark upward, then place it against the TG-8 guide from the direction shown in the figure, and tighten the set screw until the upper flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3)
(Tightening torque of set screw : 78×10^{-3} to 98×10^{-3} N•m (0.8 to 1Kg•cm))

[**Adjustment after replacement**]

(1) Perform TG-8 guide height adjustment according to sub-section 4-24.
(2) Perform tape run adjustment of section 6.

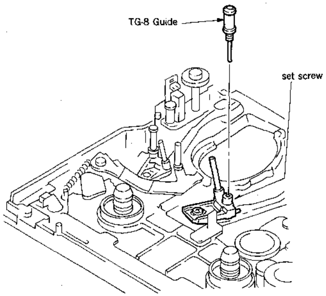


Fig. 1

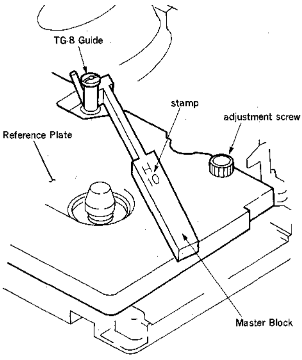


Fig. 2

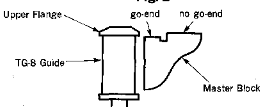


Fig. 3

4-26. SHUTTLE (LEFT) ASS'Y

Tools :

Reference plate (J-6380-080-A)
Master block (J-6380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Remote controller : (RM-V100 or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.

(2) Remove the stop washer, then remove the arm of the loading gear (left) ass'y from the shaft of the shuttle plate ass'y. (Fig. 1)

Note : Take care not to deform the arm of the loading gear (left) ass'y.

(3) Remove the screw, then remove the shuttle (left) ass'y and the shuttle plate ass'y. (Fig. 2)

Precaution for installation

①The tension regulator ass'y and shuttle (left) ass'y must be in the position shown in Fig. 3.

②Put the screw as shown in Fig. 4 when installing the shattle (left) ass'y to the shattle plate ass'y.

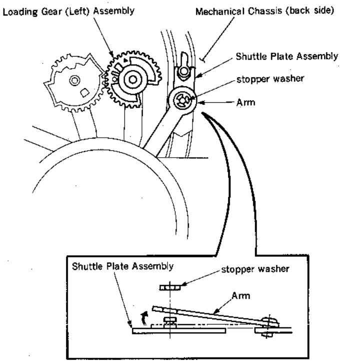

Loading Gear (Left) Assembly
Mechanical Chassis (back side)
Shuttle Plate Assembly
stopper washer
Arm
Shuttle Plate Assembly
stopper washer
Arm

Fig. 1

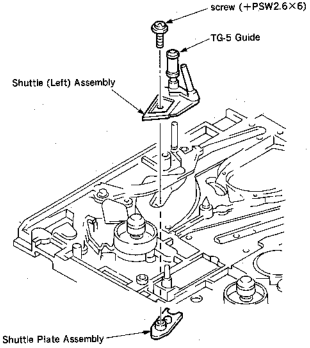

screw (+PSW2.6×6)
TG-5 Guide
Shuttle (Left) Assembly
Shuttle Plate Assembly

Fig. 2

[**Adjustment after replacement**]

TG-5 guide height adjustment

(1) Press the PLAY button on the remote controller for the threading completion mode. (See sub-section 4-1-3.)

(2) Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.

(3) Install the reference plate on the chassis. (Fig. 5) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

(4) Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

(5) While moving the stabilizer in the direction of the arrow, set the master block with the H10 stamped mark upward, then place it against the TG-5 guide from the direction shown in the figure. (Fig. 5)

(6) Using the guide adjustment screwdriver, turn the upper flange on the guide until the specification is satisfied. (Fig. 6)

(7) Perform tape run adjustment of section 6.

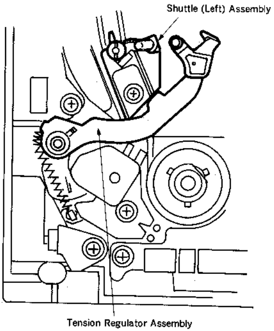
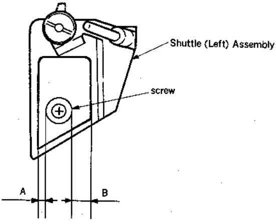

Shuttle (Left) Assembly
Tension Regulator Assembly

Fig. 3


Shuttle (Left) Assembly
screw
A
B

A : B=1 : 3

Fig. 4

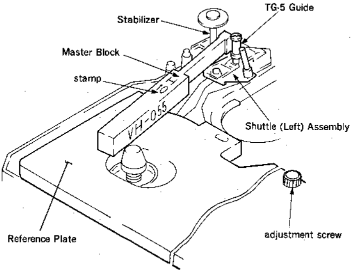

Stabilizer
TG-5 Guide
Master Block
stamp
H10
VH-055
Shuttle (Left) Assembly
Reference Plate
adjustment screw

Fig. 5

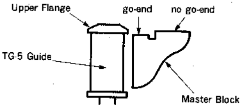

Upper Flange
go-end
no go-end
TG-5 Guide
Master Block

Fig. 6

Spec. :
The height of the upper flange must pass at the go-end of the master block and stop at the no go-end.

4-27. TG-5 GUIDE

Tools :
Reference plate (J-6380-080-A)
Master block (J06380-550-A)
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
Hex wrench screwdriver (width 0.89mm)
Remote controller (RM-V100 or RM-V200)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Loosen the set screw with a hex wrench. (Fig. 1)
(3) Rotate the TG-5 guide counterclockwise with the guide adjustment screwdriver, and remove it. (Fig. 1)

Precaution for installation

①Clean the mounting face of the reference plate and the four mounting faces on the chassis with cleaning fluid.

②Install the reference plate on the chassis. (Fig. 2) (If the reference plate moves about when the top of the plate is touched gently with the fingers at a point near where it is installed on the chassis, turn the adjustment screw until the plate no longer moves about.)

③Clean the top of the reference plate and the adjustment face of the master block with cleaning fluid.

④Set the master block with the H10 stamped mark upward, then place it against the TG-5 guide from the direction shown in the figure, and tighten the set screw untile the upper flange is roughly the same height as the go-end of the master block. (Figs. 2 and 3)
(Tightening torque of set screw : 78×10^{-3} to 98×10^{-3} N•m (0.8 to 1Kg•cm))

[Adjustment after replacement]
(1) Perform TG-5 guide height adjustment according to sub-section 4-26.
(2) Perform tape run adjustment of section 6.

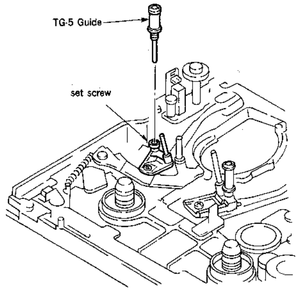


Fig. 1

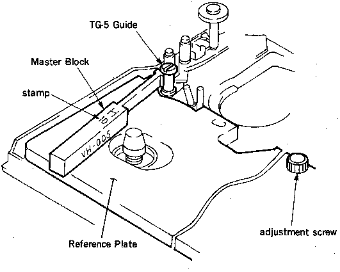


Fig. 2

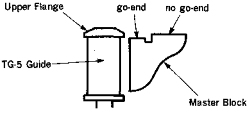


Fig. 3

4-28. SLIDE RAIL (R)

(1) Remove the cassette compartment according to sub-section 4-2.

(2) Remove the BC roller ass'y according to sub-section 4-3.

(3) Remove the shuttle (right) ass'y according to sub-section 4-24.

(4) Remove the screw, then remove the LE-80 board. (Fig. 1)

(5) Remove the two screws, then remove the shuttle holder in the direction of arrow A. (Fig. 1)

(6) Remove claws **a**, **b** and **c** and also the two parts with the square hole on slide rail (R) from the chassis, then remove the slide rail (R). (Fig. 1)

Precautions for installation

①While moving the stabilizer in the direction of arrow B, fit claw **a** into the chassis, then insert projection **a** into the hole in the chassis. (Fig. 1)

②Next, align projections **b** and **c** with the holes in the chassis, then insert claws **b** and **c** and also the two parts with the square holes into the chassis. (Figs. 2 and 3)

[**Adjustment after replacement**]

(1) Perform tape run adjustment of section 6.

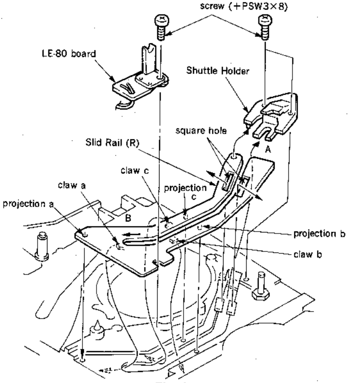

screw (+PSW3×8)
LE-80 board
Shuttle Holder
square hole
Slid Rail (R)
A
claw c
claw a
projection c
projection a
B
projection b
claw b

Fig. 1

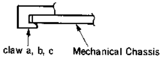

claw a, b, c
Mechanical Chassis

Fig. 2

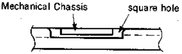

Mechanical Chassis
square hole

Fig. 3

4-29. SLIDE RAIL (L)

(1) Remove the cassette compartment according to sub-section 4-2.
(2) Remove the tension regulator ass'y and the STD ass'y according to sub-section 4-7.
(3) Remove the tape stabilizer ass'y according to sub-section 4-9.
(4) Remove the shuttle (left) ass'y according to sub-section 4-26.
(5) Remove the two screws, then remove the shuttle holder in the direction of arrow A. (Fig. 1)
(6) Remove claws **a**, **b** and **c** and the two parts with the square hole on slide rail (L) from the chassis, then remove the slide rail (L). (Fig. 1)

Precautions for installation

①While moving the slide rail in the direction of arrow B, fit claw **a** into the chassis, then insert projection **a** into the hole in the chassis. (Fig. 1)

②Next, align projections **b** and **c** with the holes in the chassis, then insert claws **b** and **c** and also the two parts with the square hole into the chassis. (Figs. 2 and 3)

[Adjustment after replacement]

(1) Adjust the height of the TG-3 guide once again according to sub-section 4-9.
(2) Adjust the position of the tension regulator once again according to sub-section 4-7.
(3) Adjust the tape tension once again according to sub-section 6-2.
(4) Perform tape run adjustment of section 6.

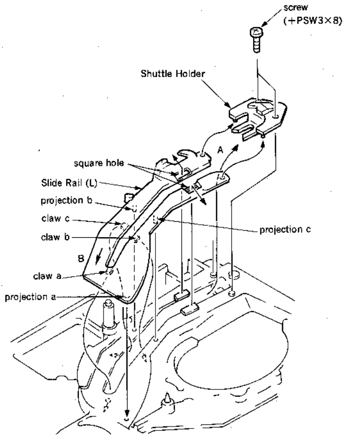

screw
(+PSW3×8)
Shuttle Holder
A
square hole
Slide Rail (L)
projection b
claw c
claw b
B
claw a
projection a
projection c

Fig. 1

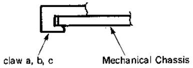

claw a, b, c
Mechanical Chassis

Fig. 2

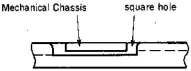
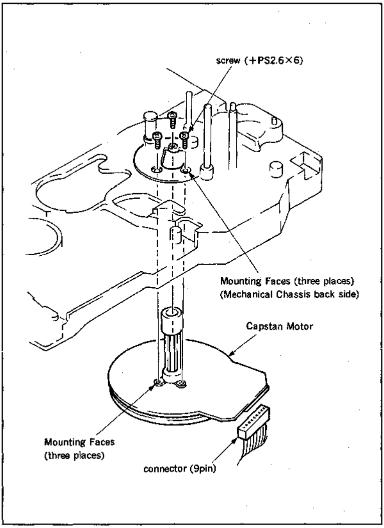

Mechanical Chassis
square hole

Fig. 3

4-30. CAPSTAN MOTOR

(1) Remove the drive gear ass'y according to subsection 4-20.
(2) Disconnect the 9-pin connector from the capstan motor board.
(3) Remove the three screws, then remove the capstan motor.


screw (+PS2.6×6)
Mounting Faces (three places)
(Mechanical Chassis back side)
Capstan Motor
Mounting Faces
(three places)
connector (9pin)

Precaution for installation

①Clean the three mounting faces at the back of the chassis and the three mounting faces of the capstan motor with cleaning fluid.
②Take care not to damage the capstan shaft.

[Adjustment after replacement]

(1) Perform tape run adjustment of section 6.

SECTION 5
TORQUE AND TAPE TENSION ALIGNMENT

5-1. S/T REEL TABLE TORQUE ADJUSTMENT

Tools :

Torque gauge (H-7099-039-H)
Torque gauge adapter (H-7099-035-H)
Short clip

Adjustment Procedure :

(1) Remove the cassette compartment according to sub-section 2-2.
(2) Turn ON No.8 switch of DIP switch S101/SS board (J-9). (Fig. 1)
(3) Short TP304 (E-9) and E101 (G-9) with a shorting clip. (Fig. 1)
(4) Press the cassette DOWN switch with the finger, and while keeping it depressed, turn the POWER switch ON. (Fig. 2)
(5) Put the VTR in the PLAY mode.

S side reel table adjustment

(6) Stop the S side reel table with the hand, and install the torque gauge. (Fig. 3)
(7) Adjust RV303/SS board (C-9) so that the value on the torque gauge meet the required specification.

T side reel table adjustment

(8) Stop the T side reel table with the hand, and install the torque gauge. (Fig. 3)
(9) Adjust RV304/SS board (C-9) so that the value on the torque gauge meet the required specification.
(10) Upon completion of adjustments, remove the shorting clip.
(11) Turn off No. 8 switch.

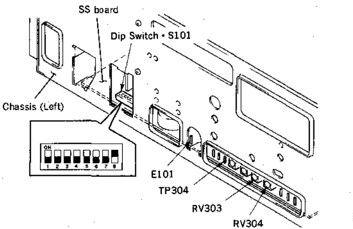

SS board
Dip Switch • S101
Chassis (Left)
ON
1 2 3 4 5 6 7 8
E101
TP304
RV303
RV304

Fig. 1

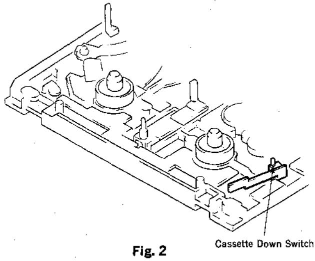

Cassette Down Switch

Fig. 2

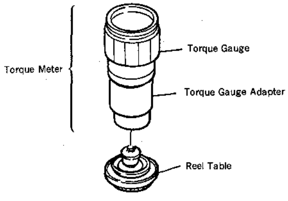

Torque Meter
Torque Gauge
Torque Gauge Adapter
Reel Table

Fig. 3

Spec. :
S/T Side $(147\pm5)\times10^{-4}$ N·m (150±5g·cm)

5-2. TAPE TENSION ADJUSTMENT

Be sure to perform this adjustment after replacing a part of the tape run system, such as the drum or tension regulator. Also, be sure to check the tape tension when performing a periodic check.

Tools :
Tentelometer, T2-H7-UMC
Digital voltmeter
VHS cassette tape, T-120

Adjustment Procedure :

(1) To prevent the tape from touching the tentelometer, rotate the tape stabilizer in the direction of the arrow until it strikes the chassis (left), then insert the bamboo skewer, or the like, at point "a" shown in the figure, and fix it in place. (Fig. 1)
(2) Insert a cassette tape (T-120) in the VTR, then put the VTR into the PLAY mode.
(3) Install the tentelometer between the TG-3 guide and the TG-5 guide. (Fig. 1)
(4) Adjust RV302 (SS board) so that the value on the tentelometer meet the required specification 1.
(5) Enter the Search REV mode.
(6) Adjust RV301 (SS board) so that the value on the tentelometer meet the required specification 2.
(7) Re-check that the PLAY tape tension meet the required specification 1.
(8) Check that the voltage at TP301 (SS board) meet the required specification 3.
(9) Remove the tentelometer and bamboo skewer, then press the EJECT button and remove the cassette tape.

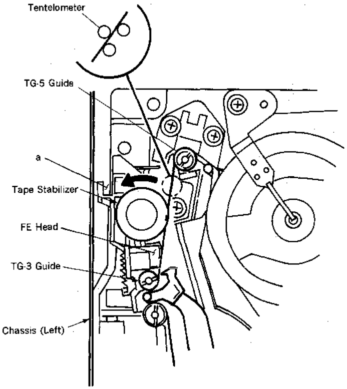


Fig. 1

Spec. 1 : Tape tension in the PLAY mode
[245±25]×10^{-3} N (25±2.5g)

Spec. 2 : Tape tension in the Search REV mode
[200±25]×10^{-3} N (20±2.5g)

Spec. 3 : Voltage across TP301 in the Search REV mode
8.5V max.

SECTION 6
TAPE RUN ALIGNMENT

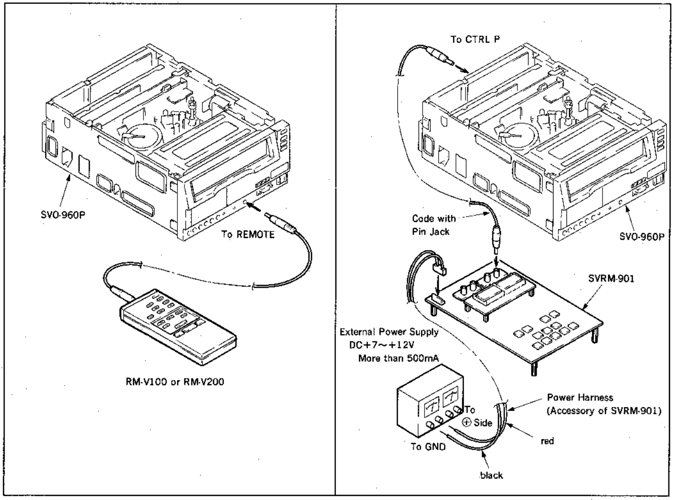
The tape run system has been adjusted before leaving the factory. If a part in the transport is replaced, therefore, the new part should be adjusted carefully to ensure that the tape transport is stable.
This section covers the entire adjustment procedure from coarse adjustment to fine adjustment.
Before commencing adjustment, remove the top panel and the U case of the VTR.

[**Adjustment preparations**]

1) **Remote controller**

There are no function keys on the front panel of this VTR.
Obtain remote controller RM-V100, RM-V200 or SVRM-901 to operate the VTR.

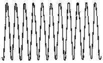
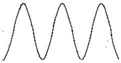
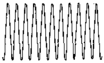
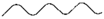
Connecting the remote controller


SVO-960P
To REMOTE
RM-V100 or RM-V200
To CTRL P
Code with
Pin Jack
SVO-960P
SVRM-901
External Power Supply
DC+7~+12V
More than 500mA
To
⊕ Side
To GND
Power Harness
(Accessory of SVRM-901)
red
black

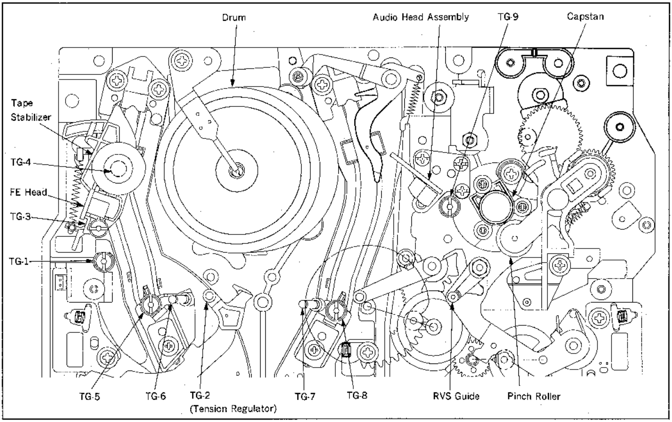
2) Equipment and tool

- Oscilloscope
- Digital voltmeter
- Tentelometer, T2-H7-UMC
- Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)
- Small adjustment mirror (J-6080-840-A)
- X value adjustment tool (J-6380-710-A)
- X value adjustment tool connecting cable (Must be provided by the service side.)
- VHS cassette tape, T-160 and T-120
- Alignment tape, JVC-MH-2 (H-7099-052-H)
- Alignment tape, KRV-4821PS (8-192-602-46)
- Alignment tape, KRV-4821PSA (8-192-602-48)

Signals recorded on the alignment tape

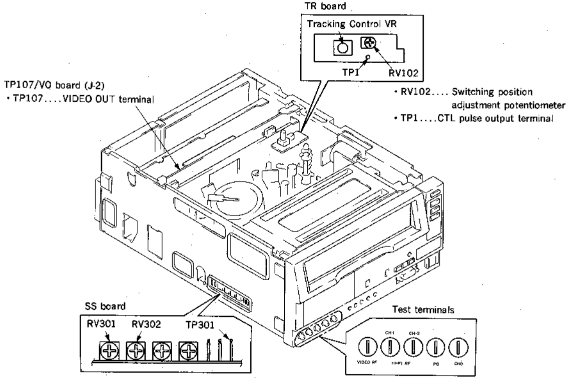
Name (Part No.)	Recording Mode	Signals recorded on the tape	
		Video area	Audio area
JVC-MH-2 (H-7099-052-H)	SP	• Stairstep 10min. • No signal 5min. • Color bars 10min. • RF sweep 3min. Markers: 2.0MHz 4.0MHz 5.0MHz	• 7kHz 10min. • 3kHz 5min. • 1kHz (0dB) 10min. • No signal 3min.
KRV-4821PSA (8-192-602-48)	SP	• 1MHz (CH-1 only) • 1V blanking every 60V } 120min.	• 7kHz 120min. • 1kHz 120min. } MIX 7kHz  1kHz 
KRV-4821PS (8-192-602-46)	SP	• 1MHz (CH-1 only) • 1V blanking every 60V } 120min.	• 7kHz 120min. • 1kHz 120min. } MIX 7kHz  1kHz 

[Tape guide layout drawing]


Drum
Audio Head Assembly
TG-9
Capstan
Tape Stabilizer
TG-4
FE Head
TG-3
TG-1
TG-5
TG-6
TG-2 (Tension Regulator)
TG-7
TG-8
RVS Guide
Pinch Roller

[Position of potentiometers and TP terminals]

The positions of the adjustment potentiometers and TP terminals are shown in the figure below. (The figure below shows the VTR with the top panel and U case removed.)

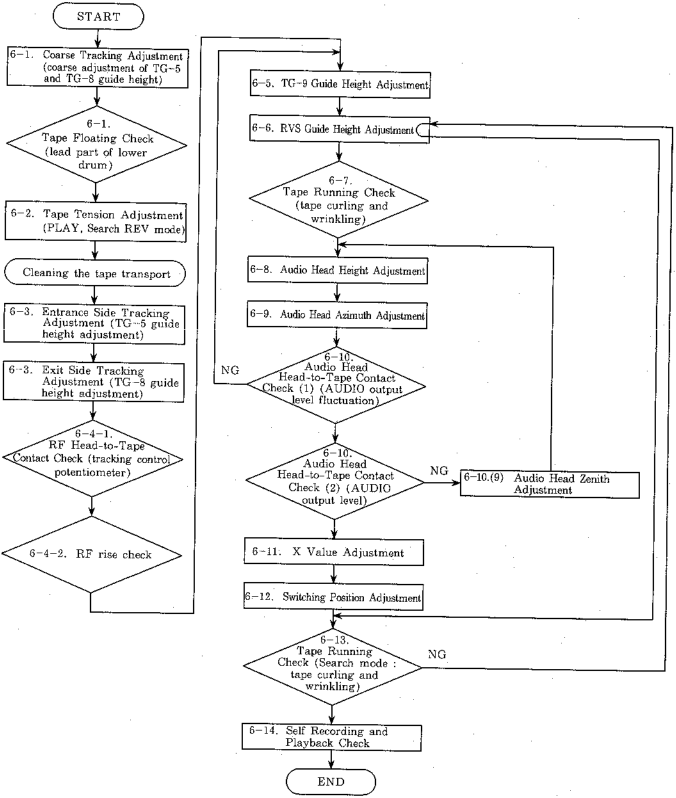

TR board
Tracking Control VR
TP1
RV102
TP107/VO board (J-2)
SS board
RV301
RV302
TP301
Test terminals
CH-1
CH-2
VIDEO RF
HI-FI RF
PG
GND

- TP107....VIDEO OUT terminal

- RV102.... Switching position adjustment potentiometer
- TP1....CTL pulse output terminal

- RV301....Search REV mode tape tension adjustment potentiometer
- RV302....PLAY mode tape tension adjustment potentiometer
- TP301....Tension sensor output terminal

[**Adjustment Flow Chart**]


START
6-1. Coarse Tracking Adjustment (coarse adjustment of TG-5 and TG-8 guide height)
6-1. Tape Floating Check (lead part of lower drum)
6-2. Tape Tension Adjustment (PLAY, Search REV mode)
Cleaning the tape transport
6-3. Entrance Side Tracking Adjustment (TG-5 guide height adjustment)
6-3. Exit Side Tracking Adjustment (TG-8 guide height adjustment)
6-4-1. RF Head-to-Tape Contact Check (tracking control potentiometer)
6-4-2. RF rise check
6-5. TG-9 Guide Height Adjustment
6-6. RVS Guide Height Adjustment
6-7. Tape Running Check (tape curling and wrinkling)
6-8. Audio Head Height Adjustment
6-9. Audio Head Azimuth Adjustment
NG
6-10. Audio Head Head-to-Tape Contact Check (1) (AUDIO output level fluctuation)
6-10. Audio Head Head-to-Tape Contact Check (2) (AUDIO output level)
NG
6-10.(9) Audio Head Zenith Adjustment
6-11. X Value Adjustment
6-12. Switching Position Adjustment
6-13. Tape Running Check (Search mode : tape curling and wrinkling)
NG
6-14. Self Recording and Playback Check
END

6-1. COARSE TRACKING ADJUSTMENT

Tools:

Oscilloscope
Alignment tape, KRV-4821PSA or KRV-4821PS
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)

Adjustment Procedure:

(1) Connect the oscilloscope as follows.
    CH-1: VIDEO RF terminal/front panel
    TRIG: PG terminal/front panel
    GND: GND terminal/front panel
(2) Playback the color bar part of the alignment tape, and confirm that the RF of both channels is output.
(3) Turn the tracking control potentiometer on the TR board until the center part of the RF waveform is maximum. (Fig. 2)
(4) Turn the upper flange of the TG-5 guide until the RF waveform at the entrance side is virtually flat. (Fig. 3)
(5) Turn the upper flange of the TG-8 guide until the RF waveform at the exit side is virtually flat. (Fig. 4)
(6) Turn the tracking control potentiometer until the center part of the RF waveform is maximum.
(7) Push the center top part of the tape wrapped around the drum with a bamboo skewer, or the like, and confirm that the level change of the RF waveform meet the specification. (Fig. 5) (Fig. 6)
(8) Press the EJECT button, and remove the alignment tape.

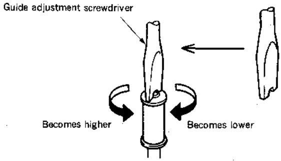

Guide adjustment screwdriver
Becomes higher
Becomes lower

Fig. 1 Tape Guide Adjustment Method.

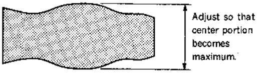

Adjust so that center portion becomes maximum.

Fig. 2

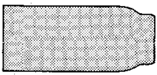


Fig. 3

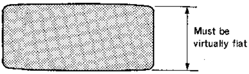

Must be virtually flat

Fig. 4

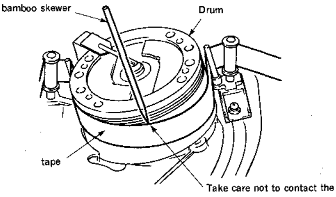

bamboo skewer
Drum
tape
Take care not to contact the bamboo skewer against the video head.

Fig. 5

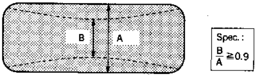

B
A
Spec.:
B/A ≧0.9

Fig. 6

6-2. TAPE TENSION ADJUSTMENT

Tools :

Tentelometer, T2-H7-UMC
Digital voltmeter
VHS cassette tape, T-120

Adjustment Procedure :

(1) To prevent the tape from touching the tentelometer, rotate the tape stabilizer in the direction of the arrow until it strikes the chassis (left), then insert the bamboo skewer, or the like, at point "a" shown in the figure, and fix it in place. (Fig. 1)
(2) Insert a cassette tape (T-120) in the VTR, then put the VTR into the PLAY mode.
(3) Install the tentelometer between the TG-3 guide and the TG-5 guide. (Fig. 1)
(4) Adjust RV302 (SS board) so that the value on the tentelometer meet the required specification 1.
(5) Enter the Search REV mode.
(6) Adjust RV301 (SS board) so that the value on the tentelometer meet the required specification 2.
(7) Re-check that the PLAY tape tension meet the required specification 1.
(8) Check that the voltage at TP301 (SS board) meet the required specification 3.
(9) Remove the tentelometer and bamboo skewer, then press the EJECT button and remove the cassette tape.

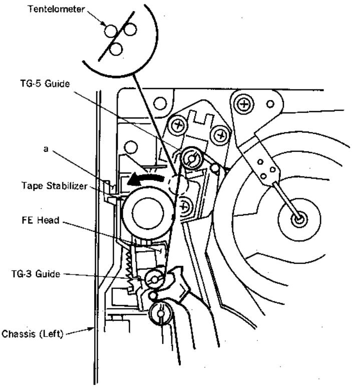


Fig. 1

Spec. 1 : Tape tension in the PLAY mode
$(245 \pm 25) \times 10^{-3}$ N (25 ± 2.5g)

Spec. 2 : Tape tension in the Search REV mode
$(200 \pm 25) \times 10^{-3}$ N (20 ± 2.5g)

Spec. 3 : Voltage across TP301 in the Search REV mode
8.5V max

6-3. TRACKING ADJUSTMENT

Tools:
Oscilloscope
Alignment tape, KRV-4821PSA or KRV-4821PS
Guide adjustment screwdriver (J-6082-044-A or J-6080-811-A)

Cleaning prior to adjustment:
Clean the following parts with a cleaning piece moistened with cleaning fluid.

- TG-1 to TG-9 and RVS tape guide
- Audio head, FE head, capstan, pinch roller
- Rotary head, tape run face of upper and lower drums

[Note: Method of cleaning the rotary head]
Press the cleaning piece gently against the rotary head, then rotate the upper drum slowly in the counterclockwise direction with the fingers to clean the head.

Adjustment Procedure:

(1) Connect the oscilloscope as follows.
CH-1: VIDEO RF terminal/front panel
TRIG: PG terminal/front panel
GND: GND terminal/front panel

(2) Playback the alignment tape.

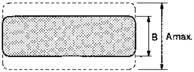
Entrance side adjustment:

(3) Turn the tracking control potentiometer on the TR board until the RF waveform is 70 to 80% of maximum. (Fig. 1)

(4) Turn the upper flange of the TG-5 guide clockwise until the RF waveform at the left hand side is as shown in Fig. 2.

(5) Turn the upper flange on the TG-5 guide in the counterclockwise direction until the RF waveform at the left hand side is flat. (Fig. 3)
Note:
- Complete the height adjustment of TG-5 with the guide turned counterclockwise.

(6) Turn the tracking control potentiometer on the TR board counterclockwise until the RF waveform is 70 to 80% of maximum, then confirm that the RF waveform at the left hand side is virtually flat. (Fig. 4)



$\frac{B}{Amax.}=0.7\sim0.8$

Fig. 1

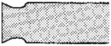


Fig. 2

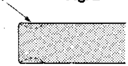
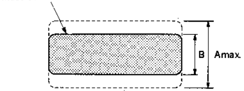


Fig. 3



Spec.:
RF waveform at entrance side must be virtually flat when $\frac{B}{Amax.}=0.7$ to 0.8.

Fig. 4

Exit side adjustment:

(7) Turn the tracking control potentiometer on the TR board until the RF waveform is 70 to 80% of maximum. (Fig. 1)

(8) Turn the upper flange of the TG-8 guide clockwise until the RF waveform on the right hand side is as shown in Fig. 5.

(9) Turn the upper flange of the TG-8 guide counterclockwise until the RF waveform on the right hand side is flat. (Fig. 6)

Note:

- Complete the height adjustment of TG-8 with the guide turned counterclockwise.

(10) Turn the tracking control potentiometer on the TR board counterclockwise until the RF waveform is 70 to 80% of maximum, then confirm that the RF waveform at the right hand side is virtually flat. (Fig. 7)

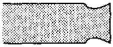


Fig. 5

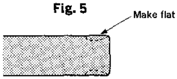
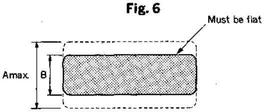


Fig. 6



Spec.:

RF waveform at exit side must be virtually flat when $\frac{B}{\text{Amax.}}$ = 0.7 to 0.8.

Fig. 7

6-4. CHECKING AFTER TRACKING ADJUSTMENT

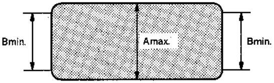
Tools :

Oscilloscope
Alignment tape, KRV-4821PSA or KRV-4821PS

- Connect the oscilloscope as follows.
  CH-1 : VIDEO RF terminal/front panel
  CH-2 : PG terminal/front panel
  GND : GND terminal/front panel

6-4-1. RF head-to-tape contact check

(1) Playback the alignment tape.
(2) Turn the tracking control potentiometer on the TR board until the center of the RF waveform is maximum.
(3) Confirm that the RF waveform meet the specification.



Spec. :
$\frac{\text{Bmin.}}{\text{Amax.}} \geq 0.8$

6-4-2. RF rise check

(1) Playback the alignment tape.
(2) Turn the tracking control potentiometer on the TR board until the center of the RF waveform becomes maximum.
(3) Put the VTR in each of the following modes in turn, and confirm that the rise time of the RF waveform meet the specification. (Fig. 1)
① SEARCH REV → PLAY
② SEARCH FWD → PLAY
③ STOP → PLAY
(4) Enter the SEARCH REV mode, and confirm that there is no missing of the RF waveform at the entrance side. (Fig. 2)

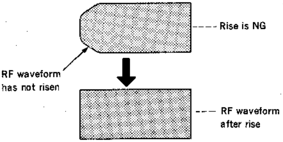


Fig. 1

Spec. :	RF rise time
① SEARCH REV → PLAY	Within 3 s
② SEARCH FWD → PLAY	Within 3 s
③ STOP → PLAY	Within 3 s

- The rise time is the time from when the RF waveform appears on the oscilloscope.

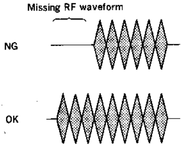


Fig. 2

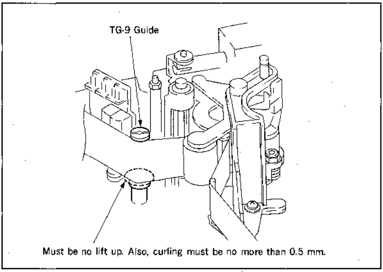
6-5. TG-9 GUIDE HEIGHT ADJUSTMENT

Tools:

VHS cassette tape (T-160)
Guide adjustment screwdriver (J-6082-044-A or
J-6080-811-A)

Adjustment Procedure:

(1) Insert a cassette tape (T-160) in the VTR, then put the VTR in the PLAY mode.
(2) Turn the upper flange of the TG-9 guide, and pass the tape along the lower flange.


TG-9 Guide
Must be no lift up. Also, curling must be no more than 0.5 mm.

6-6. RVS GUIDE HEIGHT ADJUSTMENT

Tools:

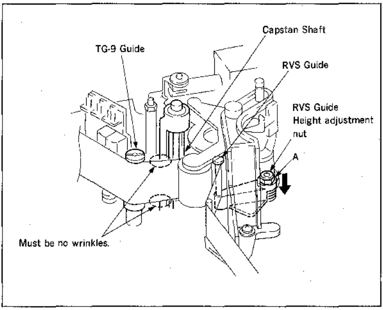
VHS cassette tape (T-160)
Box screwdriver (width 5.5 mm)

Adjustment Procedure:

(1) Enter the Search REV mode using the first 15 minutes or less of the tape.
(2) Turn the RVS guide height adjustment nut until wrinkling of the tape between the TG-9 guide and the capstan shaft that occurs when the VTR is switched from the search REV mode to the search FWD mode, or vice-versa, disappears in less than 3 seconds.

Direction of adjustment of RVS guide height adjustment nut

If the wrinkling of the tape decreases when part A indicated in the figure (bottom of adjustment nut) is pressed in the direction of the arrow, turn the RVS guide height adjustment nut clockwise. If the wrinkling increases, turn the nut counterclockwise.


Capstan Shaft
TG-9 Guide
RVS Guide
RVS Guide Height adjustment nut
A
Must be no wrinkles.

6-7. TAPE RUNNING CHECK (check to be performed subsequent to adjustments of sections 6-1 to 6-6)

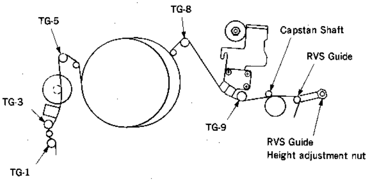
Tool :
VHS cassette tape (T-160)

Checking Procedure :

(1) Insert a cassette tape (T-160) in the VTR.
(2) Confirm that the curling of the tape at the TG-1, TG-3, TG-5, TG-8 and TG-9 guides in both the Search FWD and SEARCH REV modes meet the specification.

If the specification is not satisfied :

(3) Re-adjust the TG-9 and RVS guides height according to sub-sections 6-6 and 6-7.
(4) Check step (2).


TG-5
TG-8
Capstan Shaft
RVS Guide
TG-3
TG-9
RVS Guide
Height adjustment nut
TG-1

Spec. :
TG-1, TG-3, TG-5, TG-8, TG-9 Guides ...... Tape curling must be within 1 mm.

6-9. AUDIO HEAD HEIGHT ADJUSTMENT

Tools :

Oscilloscope

X value adjustment tool (J-6380-710-A)

Alignment tape (KRV-4821PSA or JVC-MH-2)

Box screwdriver (width 5.5 mm)

Connecting cables (two) (to be provided by the service side)....Fig. 1

Connecting the tool :

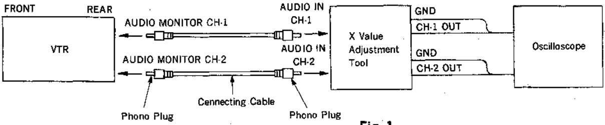

FRONT
REAR
VTR
AUDIO MONITOR CH-1
AUDIO MONITOR CH-2
AUDIO IN CH-1
AUDIO IN CH-2
X Value Adjustment Tool
GND
CH-1 OUT
GND
CH-2 OUT
Oscilloscope
Phono Plug
Cennecting Cable
Phono Plug

Fig. 1

Adjustment Procedure :

(1) Set the switch on the X value adjustment tool to the 1 kHz side.

(2) Turn the POWER switch of the X value adjustment tool ON.

(3) Playback the alignment tape (KRV-4821PSA). (When using JVC-MH-2 tape, playback the 1 kHz part.)

(4) Turn the audio head height adjustment nut until the level of both CH-1 and CH-2 is maximum. (Fig. 2, Fig. 3)

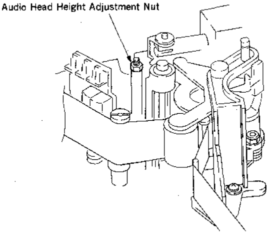

Audio Head Height Adjustment Nut

Fig. 2

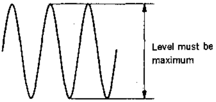

Level must be maximum

Fig. 3

6-9. AUDIO HEAD AZIMUTH ADJUSTMENT

Tools :
Oscilloscope
X value adjustment tool (J-6380-710-A)
Alignment tape, KRV-4821PSA or JVC-MH-2
Connecting cables (two) (See sub-section 6-8.)

Connecting the tool : Same as sub-section 6-8

Adjustment Procedure :

(1) Set the "AUDIO SELECT" switch on the front panel to "NORMAL".

(2) Set the switch on the X value adjustment tool to the 7kHz side.

(3) Playback the alignment tape (KRV-4821PSA). (When using JVC-MH-2 tape, playback the 7KHz part.)

Output level adjustment

(4) Turn the azimuth adjustment screw until the resurge waveform on the oscilloscope meet the specification 1. (Fig. 1, Fig. 2)

Azimuth adjustment

(5) Turn the azimuth adjustment screw until the resurge waveform on the oscilloscope meet the specification 2. (Fig. 2)

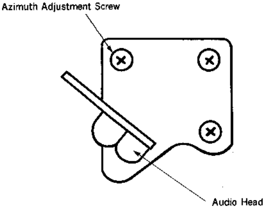


Fig. 1

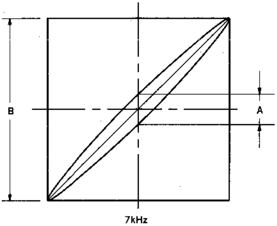


Fig. 2

Spec. 1 :
B must be the maximum level.

Spec. 2 :
A must be no more than 1cm when level B is 6cm.

6-10. AUDIO HEAD HEAD-TO-TAPE CONTACT CHECK

Tools :
Oscilloscope
X value adjustment tool (J-6380-710-A)
Alignment tape KRV-4821PSA or JVC-MH-2
Connecting cables (two) (See sub-section 6-8.)

Connecting the tool : Same as sub-section 6-8

Checking Procedure :

(1) Set the "AUDIO SELECT" switch on the front panel to "NORMAL".
(2) Set the switch on the X value adjustment tool to the 7KHz side.
(3) Playback the alignment tape (KRV-4821PSA). (When using JVC-MH-2 tape, playback the 7KHz part.)

Level fluctuation check

(4) Confirm that the level fluctuation of both CH-1 and CH-2 meet the specification. (Fig. 1)

If the specification is not satisfied :

(5) Turn the TG-9 guide counterclockwise until the specification is satisfied. (Fig. 2) (Tape curling must be no more than 0.5mm.)
(6) Return to Sec. 6-6 and repeat adjustment up to Sec. 6-9.
(7) Check step (4).

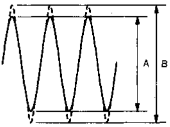
Output level check

(8) Press the top of the tape (AUDIO track part) as indicated by the arrow gently with the tip of the finger, and confirm that the increase in level conforms to the specification for both CH-1 and CH-2. (Fig. 2 and Fig. 3)

If the specification is not satisfied :

(9) Turn the zenith adjustment screw of the audio head clockwise until the specification is satisfied. (Fig. 4)
(Do not turn the zenith adjustment screw more than 90°.)
(10) Return to Sec. 6-5 and repeat adjustment up to Sec. 6-9.
(11) Check steps (4) and (8).

Level Fluctuation



Spec. :
A≧0.9B

Fig. 1

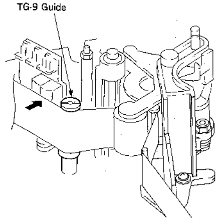
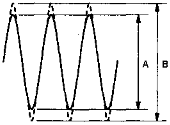


Fig. 2

Output Level



Spec. :
B≦1.2A

A : Initial level
B : Level when the tape is pressed with the finger.

Fig. 3

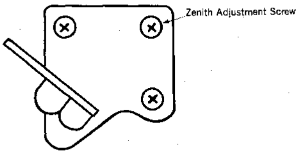


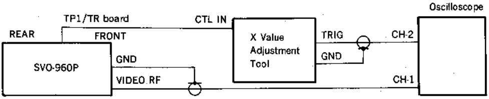
Fig. 4

6-11. X VALUE ADJUSTMENT (AUDIO HEAD POSITION ADJUSTMENT)

Tools:

Oscilloscope
X value adjustment tool (J-6380-710-A)
Alignment tape, KRV-4821PSA or KRV-4821PS
Box screwdriver, 5.5mm width
Connecting cable

Connecting the tool:


TP1/TR board
REAR
FRONT
SVO-960P
GND
VIDEO RF
CTL IN
X Value Adjustment Tool
TRIG
GND
CH-2
CH-1
Oscilloscope

Change mode of oscilloscope from "TRIG MODE" to "NORM".

Adjustment Procedure:

(1) Playback the alignment tape.
(2) Turn the tracking control potentiometer on the TR board to the center click position.
(3) Turn the AC adjustment screw until the positions of the CTL waveform and RF waveform meet the specification 1. (Fig. 1 and Fig. 2)
(4) Change the connection to the oscilloscope as follows.
TRIG: PG terminal/front panel
(5) Turn the AC adjustment screw until the center of the RF waveform is the maximum level. Confirm that the RF waveform meet the specification 2. (Fig. 3)
(6) Turn the tracking control potentiometer on the TR board left and right, and confirm that the center of the RF waveform is the maximum level when the potentiometer is at the center click position. (specification 3)

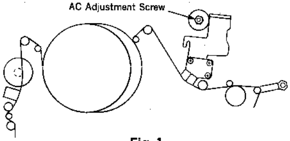

AC Adjustment Screw

Fig. 1

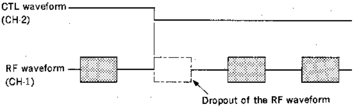
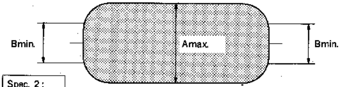

CTL waveform
(CH-2)
RF waveform
(CH-1)
Dropout of the RF waveform

Fig. 2

Spec. 1:
The point where the RF waveform has dropout must coincide with the falling edge of the CTL waveform.
If the RF waveform dropout point has shifted to the right at the CTL datum....Turn the AC adjustment screw counterclockwise.
If the RF waveform dropout point has shifted to the left at the CTL datum....Turn the AC adjustment screw clockwise.


Bmin.
Amax.
Bmin.

Spec. 2:
$\frac{Bmin.}{Amax.} \geq 0.8$

Fig. 3

Spec. 3:
The center part of the RF waveform must be the maximum level when the tracking control potentiometer is at the center click position.

6-12. SWITCHING POSITION ADJUSTMENT

Tools :

Oscilloscope
Alignment tape, JVC-MH-2

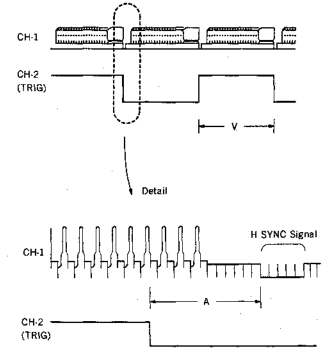
Adjustment Procedure :

(1) Connect the oscilloscope as follows.
CH-1 : TP107/VO-27 (J-2)
GND : E103/VO-27 (J-2)
CH-2 : PG terminal/front panel
TRIG : CH-2
GND : GND terminal/front panel

(2) Playback the color bar part of the alignment tape.

(3) Set the tracking control potentiometer on the TR board to the center click position.

(4) Turn RV102 on the TR board until the specification is satisfied.



Spec. :
A=6.5±0.5 H
(416±32 μs)

6-13. TAPE RUNNING CHECK (check to be performed subsequent to 6-8 to 6-12)

Tool:
VHS cassette tape, T-160

Checking Procedure:

(1) Insert the cassette tape (T-160) into the VTR.

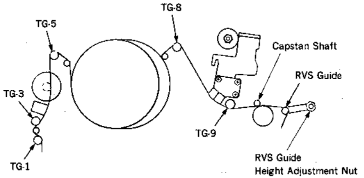
(2) Confirm that the degree of tape curling at the TG-8 and TG-9 guides meet the specification 1 when the VTR is put in the Search FWD mode and also the Search REV mode.

(3) Confirm that the degree of wrinkling of the tape between the TG-9 guide and the capstan meet the specification 2 when the mode is switched from Search FWD to Search REV, and vice-versa.

If specification 2 is not satisfied:

(4) Re-adjust the RVS guide height according to sub-section 6-6.

(5) Check steps (2) and (3).



Spec. 1:
TG-8, TG-9 Guide....Tape curling must be within 1mm.

Spec. 2:
Tape wrinkling between the TG-9 guide and the capstan shaft....Must disappear within 3 seconds.

6-14. SELF RECORDING/PLAYBACK CHECK

Tools :

Oscilloscope
VHS cassette tape, T-120

Checking Procedure :

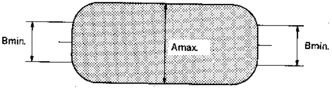
(1) Connect the oscilloscope as follows.
CH-1 : VIDEO RF terminal/front panel
TRIG : PG terminal/front panel
GND : GND terminal/front panel

(2) Set the tracking control potentiometer on the TR board to the center click position.

(3) Perform recording under no-signal conditions using the center part of the cassette tape (T-120).

(4) Confirm that the playback RF waveform meet the specification. (Fig. 1)

(5) After tape run adjustment has been completed, apply locking compound to the AC adjustment screw, and also the audio head azimuth and zenith adjustment screw. (Fig. 2)


Bmin.
Amax.
Bmin.

Spec. : $\frac{Bmax.}{Amax.} \geq 0.7$

Fig. 1

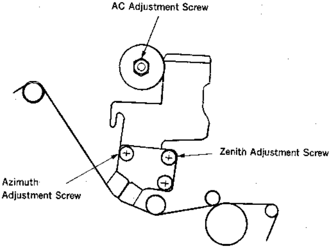

AC Adjustment Screw
Zenith Adjustment Screw
Azimuth Adjustment Screw

Fig. 2

SECTION 7
SYSTEM CONTROL ALIGNMENT

[Equipment Required]
- Digital voltmeter

7-1. BACK-UP VOLTAGE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Remove the solder bridge from SL101/SS-47A (H-9). • Connect TP101/SS-47A (F-9) to GND with a 100 ohm resistor. • POWER: ON • After adjustment, remove the resistor and solder SL101 to the former position.	TP101/SS-47A (F-9) $5.4^{+0}_{-0.1}$ Vdc	⊘RV101/SS-47A (F-9)

SECTION 8
AUDIO SYSTEM ALIGNMENT

[Equipment Required]

- Oscilloscope
- Audio signal generator
- Audio attenuator
- Audio level meter
- Frequency counter
- Alignment tape

Name (Parts No.)	REC mode	Contents		
		Video Area	Normal Audio Area	Hi-Fi Audio Area
Normal Alignment Tape KRV-31PS (8-192-603-16)	SP	· None	· 400Hz ,0VU,15s · 7kHz,0VU,15s (Recorded sequentialy)	· None
Hi-Fi Alignment Tape KRV-35PF (8-192-603-56)	SP	· Color bar	· 400Hz, 0VU	· 400Hz, 0VU
Hi-Fi RF Level Alignment Tape KRV-39PF (8-192-603-96)	SP	· None	· None	· No Audio Signal (1.4 MHz Hi-Fi carrier)

<Note> When putting the VTR into REC mode, supply color bar signal to VIDEO IN connector unless otherwise specified.

[Setting of Switch (Rear Panel)]

- Set SEPARATE/THROUGH switch to THROUGH mode.

8-1. Hi-Fi AUDIO EE LINE OUT LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : 1kHz -10dBu · AUDIO OUT SELECT Switch: Hi-Fi · STOP mode · CH1,2 Hi-Fi LEVEL CONTROLLER (Front Panel) : *center clicked* position	CH-1:CH-1/L AUDIO MONITOR (terminated with 47kΩ) CH-2:CH-2/R AUDIO MONITOR (terminated with 47kΩ) -10±0.3dBu	[AFM-10] ⊘ CH-1:RV104 /AFM-10 (C-1) ⊘ CH-2:RV204 /AFM-10 (C-2)

8-2. DOLBY NR LEVEL (NORMAL AUDIO) ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : 1kHz -10dBu · STOP mode · CH-1,2 Normal Audio level Controller : center clicked position	CH-1: TP108 / AFM-10 (G-2) CH-2: TP208 / AFM-10 (E-1) -10±0.3dBu	⊘ CH-1:RV110 /AFM-10 (G-1) ⊘ CH-2:RV210 /AFM-10 (H-1)

8-3. NORMAL AUDIO EE LINE OUT LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : 1kHz -10dBu · AUDIO OUT SELECT Switch: NORMAL · STOP mode	CH-1:CH-1/L AUDIO MONITOR (terminated with 47kΩ) CH-2:CH-2/R AUDIO MONITOR (terminated with 47kΩ) -10±0.3dBu	⊘ CH-1:RV107 /AFM-10 (J-1) ⊘ CH-2:RV207 /AFM-10 (G-1)

8-4. NORMAL AUDIO PB FREQUENCY RESPONSE ADJUSTMENT

<table>
<tr><th>Machine condition for adjustment</th><th>Specification</th><th>Adjustments</th></tr>
<tr><td>· AUDIO OUT SELECT Switch: NORMAL
· Play back the alignment tape, KRV-31PS</td><td>CH-1:CH-1/L AUDIO MONITOR (terminated with 47kΩ)
CH-2:CH-2/R AUDIO MONITOR (terminated with 47kΩ)<table><tr><th>Frequency</th><th>Level</th></tr><tr><td>400Hz</td><td>Reference</td></tr><tr><td>7kHz</td><td>Reference±0.5 dB</td></tr></table></td><td>⊘ CH-1:RV105 /AFM-10 (K-3)
⊘ CH-2:RV205 /AFM-10 (I-3)</td></tr>
</table>

8-5. NORMAL AUDIO PB LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· AUDIO OUT SELECT Switch: NORMAL · Play back 400Hz portion of the alignment tape,KRV-31PS	CH-1:CH-1/L AUDIO MONITOR (terminated with 47kΩ) CH-2:CH-2/R AUDIO MONITOR (terminated with 47kΩ) -10±0.3dBu	⊘ CH-1:RV106 /AFM-10 (J-2) ⊘ CH-2:RV206 /AFM-10 (I-3)

8-6. NORMAL AUDIO BIAS CURRENT PRE-ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : no signal · REC mode	CH-1 : TP105 / AFM-7 ,10A (K-2) GND : TP104 / AFM-10 (K-2) CH-2 : TP205 / AFM-7,10A (I-2) GND : TP204 / AFM-10 (I-2) 5.0 ± 0.2 mV	⊘ CH-1:RV401 /AFM-10 (L-4) ⊘ CH-2:RV402 /AFM-10 (K-4)

8-7. NORMAL AUDIO OA FREQUENCY RESPONSE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : 1kHz,7kHz - 30dBu · AUDIO OUT SELECT Switch: NORMAL · Perform the self-recording/play back with a cassette tape.	CH-1:CH-1/L AUDIO MONITOR (terminated with 47kΩ) CH-2:CH-2/R AUDIO MONITOR (terminated with 47kΩ) If the specification is not satisfied, perform fine tuning adjustment within the specification.	⊘ CH-1:RV401 /AFM-10 (L-4) ⊘ CH-2:RV402 /AFM-10 (K-4)

Frequency	Level
1kHz	Reference
7kHz	Reference±1.0 dB

8-8. NORMAL AUDIO OA LEVEL ADJUSTMENT

Step 1.

Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : 1kHz - 10dBu · AUDIO OUT SELECT Switch: NORMAL · Perform the self-recording/play back with a cassette tape.	CH-1:CH-1/L AUDIO MONITOR (terminated with 47kΩ) CH-2:CH-2/R AUDIO MONITOR (terminated with 47kΩ) -10±0.5dBu <Note> If the specification is not satisfied,note the measurement value,perform the adjustment of the Step 2.	

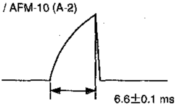
Step 2.

Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : 1kHz - 10dBu · AUDIO OUT SELECT Switch: NORMAL · REC mode or STOP mode	CH-1 : TP110 / AFM-10 (K-2) CH-2 : TP210 / AFM-10 (I-2) Compensate the difference between the specification and the measurement value.(After compensation, perform the Step 1.)	⊘ CH-1:RV108 /AFM-10 (H-1) ⊘ CH-2:RV208 /AFM-10 (H-1)

8-9. Hi-Fi AUDIO CARRIER FREQUENCY ADJUSTMENT

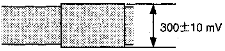
Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : no signal · REC mode or STOP mode	TP5 / AFM-10 (B-2) 1.4±0.005MHz	⊘ RV103 /AFM-10 (B-1)
	TP6 / AFM-10 (B-2) 1.8±0.005MHz	⊘ RV203 /AFM-10 (B-1)

8-10. Hi-Fi AUDIO SWITCHING PULSE WIDTH ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· Play back the alignment tape , KRV-35PF	TP3 / AFM-10 (A-2) 	⊘ RV1 /AFM-10 (A-3) Trigger:INT

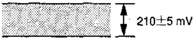
(NOTE) : After this adjustment is completed, check so that there is no gap between CH-A and CH-B by RF signal Test Terminals (Hi-Fi, CH-1) of front panel while playing back the alignment tape, KRV-35PF.

8-11. Hi-Fi AUDIO PB RF LEVEL ADJUSTMENT

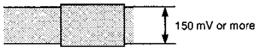
Machine condition for adjustment	Specifications	Adjustments
· Play back the alignment tape , KRV-39PF · Tracking Volume : Maximize the Hi-Fi RF level.	Test Terminal,Hi-Fi CH-1 (Front panel) 	⊘ RV2 /AFM-10 (B-3) Trigger :Test terminal,PG (front Panel)

(NOTE) : After this adjustment is completed, return Tracking volume to center position.

8-12. Hi-Fi AUDIO REC CURRENT ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· CH-1,2 AUDIO IN : no signal · REC mode	CN804-1 / RP-52A (B-1) 	⊘ RV3 /AFM-10 (B-4) Trigger:INT

8-13. Hi-Fi AUDIO OA RF LEVEL CHECK
(Perform this adjustment when RP-52A board is A-6727-315-B.)

Machine condition for adjustment	Specifications	Adjustments
· CH-1,2 AUDIO IN : no signal · Perform the self-recording/play back with a cassette tape.	Test Terminal,Hi-Fi CH-1 (Front panel)  150 mV or more If the specification is not satisfied , turn off the switch SW1 / RP-52A.	Trigger :Test terminal,PG (front Panel)

8-14. Hi-Fi AUDIO PB LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· AUDIO OUT SELECT Switch: Hi-Fi · Play back the alignment tape , KRV-35PF	CH-1:CH-1/L AUDIO MONITOR (terminated with 47kΩ) CH-2:CH-2/R AUDIO MONITOR (terminated with 47kΩ) -10±0.5dBu	⊘ CH-1:RV101 /AFM-10 (A-1) ⊘ CH-2:RV201 /AFM-10 (B-4)

8-15. Hi-Fi AUDIO OA LEVEL ADJUSTMENT

Step 1.

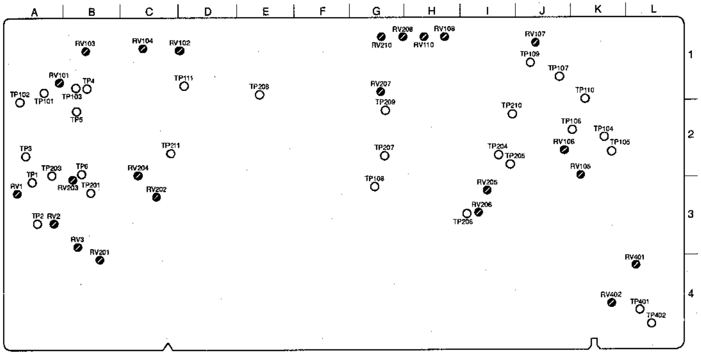
Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : 1kHz -10dBu · AUDIO OUT SELECT Switch: Hi-Fi · Perform the self-recording/play back with a cassette tape.	CH-1:CH-1/L AUDIO MONITOR (terminated with 47kΩ) CH-2:CH-2/R AUDIO MONITOR (terminated with 47kΩ) -10±0.5dBu <Note> If the specification is not satisfied,note the measurement value,perform the adjustment of the Step 2.	

Step 2.

Machine condition for adjustment	Specifications	Adjustments
· CH1-1,2 AUDIO IN : 1kHz -10dBu · AUDIO OUT SELECT Switch: Hi-Fi · REC mode or STOP mode	CH-1 : TP103 / AFM-10 (B-1) CH-2 : TP203 / AFM-10 (A-2) Compensate a half of the difference between the specification and the measurement value. (After compensation,perform the Step 1.)	⊘ CH-1:RV102 /AFM-10 (C-1) ⊘ CH-2:RV202 /AFM-10 (C-3)

Locations of RVs and TPs on AFM-10 Board

AFM-10 Board


A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
RV103
RV104
RV102
RV101
TP4
TP102
TP101
TP103
TP5
TP111
TP208
TP3
TP211
TP203
TP6
TP1
RV1
RV203
TP201
RV204
RV202
TP2
RV2
RV3
RV201
RV210
RV208
RV110
RV108
RV207
TP209
TP207
TP108
RV107
TP109
TP107
TP110
TP210
TP106
TP104
RV106
TP105
TP204
TP205
RV105
RV205
RV206
TP206
RV401
RV402
TP401
TP402

B SIDE

SECTION 9
VIDEO SYSTEM ALIGNMENT

[Equipment required]

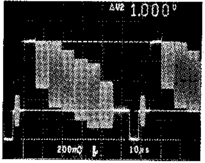
- Oscilloscope
- Frequency counter
- NTSC signal generator (TEKTRONIX 1411 or equivalent)
- Alignment tape

Name(Parts No.)	REC mode	Contents		
		Video Area	Normal Audio Area	Hi-Fi Audio Area
Hi-Fi Alignment Tape KRV-35PF (8-192-603-56)	SP	· Color bar	· 400Hz, 0VU	· 400Hz, 0VU

[Preset Before Adjustment]

(1) EDIT switch : S101/VO-27 (G-1) → OFF

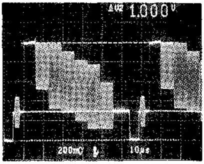
9-1. AGC ON Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN: color bar signal · STOP mode · AGC ON (Note)	VIDEO OUT connector (terminated with 75Ω)  1.00±0.05V	⊘ RV107/VO-27(G-3)

(NOTE) : [AGC ON] setting

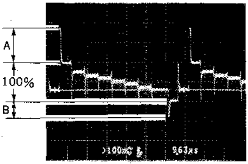
1) Set the mode select switch to DATA SET.
2) Press the [ITEM] button to select the "AGC-ON (or OFF)" on the display.
3) If "AGC-OFF" is display, Press the [DATA] button to "AGC-ON".

9-2. AGC OFF Y LEVEL ADJUSTMENT

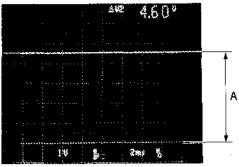
Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: color bar signal • EE mode • AGC OFF (Note) • After adjustment, AGC ON.	VIDEO OUT connector (terminated with 75Ω)  1.00±0.05V	⊘RV101/VO-27 (J-1)

(Note): Refer to section 9-1.

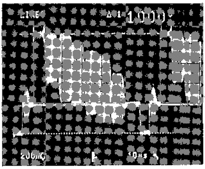
9-3. WHITE/DARK CLIP ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: color bar signal • EE mode	TP105/VO-27 (E-3)  with respect to 100% (VIDEO+SYNC) white: A=90 $^{+0}_{-10}$% dark: B=40 $^{+0}_{-10}$%	white clip adjustment ⊘RV111/VO-27 (E-2) dark clip adjustment ⊘RV110/VO-27 (E-2)

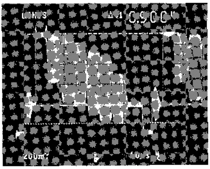
9-4. FREQUENCY RESPONSE VOLTAGE ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: color bar signal • EE mode	TP108/VO-27 (F-4)  A=4.6±0.2Vdc	⊘ RV102/VO-27 (F-4)

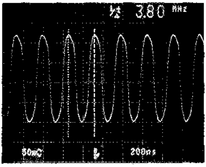
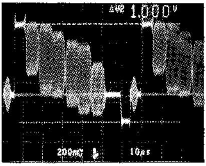
9-5. PB Y LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bar signal portion of the alignment tape KRV-35PF.	VIDEO OUT connector (terminated with 75Ω)  1.00±0.05V	⊘ RV103/VO-27 (D-3)

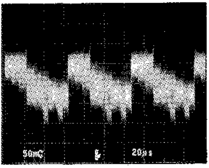
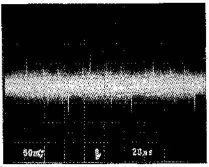
9-6. PB CHROMA LEVEL ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bar signal portion of the alignment tape KRV-35PF.	VIDEO OUT connector (terminated with 75Ω)  $0.90^{+0}_{-0.05}$ V	⊘RV303/VO-27 (H-4)

9-7. SYNC TIP CARRIER SET/DEVIATION ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• VIDEO IN: no signal	Sync Tip carrier set adjustment TP103/VO-27 (E-1)  3.80±0.05MHz	⊘RV109/VO-27 (E-2)
• VIDEO IN: color bar signal • Perform the self-recording/play back with a cassette tape.	deviation adjustment VIDEO OUT connector (terminated with 75Ω)  1.00±0.05V	⊘RV108/VO-27 (E-2)

9-8. NOISE CANCEL ADJUSTMENT

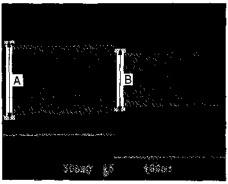
Machine condition for adjustment	Specifications	Adjustments
• Play back the color bar signal portion of the alignment tape KRV-35PF.	TP104/VO-27 (F-2) NG  ⇩ OK  Minimize the level	⊘RV106/DL-44

9-9. PB 4.43MHz OSC ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
• Play back the color bar signal portion of the alignment tape KRV-35PF.	TP303/VO-27 (A-2) 4433619±10Hz	⊘CV301/VO-27 (A-3)

9-10. Y REC CURRENT ADJUSTMENT

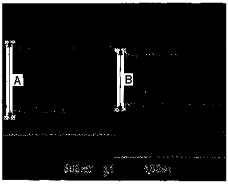
(Perform this adjustment, when RP-52A mount is A-6727-315-A.)

Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN : color bar signal · REC mode	CN804-3 / RP-52A(B-1)  CH-1:A=1.6Vp-p CH-2:B=1.3Vp-p at V-sync	CH-1: ⊘ RV105 / VO-27(D-1) CH-2: ⊘ RV106 / VO-27(D-1)

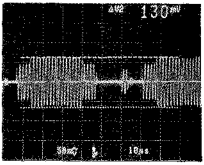
<Note> S/No.10001 to 10100: Set A=B=1.3Vp-p using RV105. (RV106 is not mounted on the board.)

9-10. Y REC CURRENT ADJUSTMENT

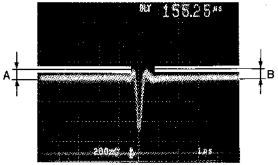
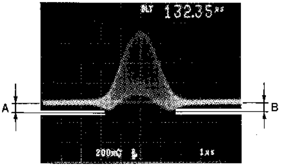
(Perform this adjustment, when RP-52A mount is A-6727-315-B.)

Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN : color bar signal · REC mode	TP103 / VO-27(E-1)  CH-1:A=210 ±5mVp-p CH-2:B=210 ±5mVp-p at V-sync	CH-1: ⊘ RV105 / VO-27 (D-1) CH-2: ⊘ RV106 / VO-27 (D-1) Trigger: PG Terminal (Front Panel)

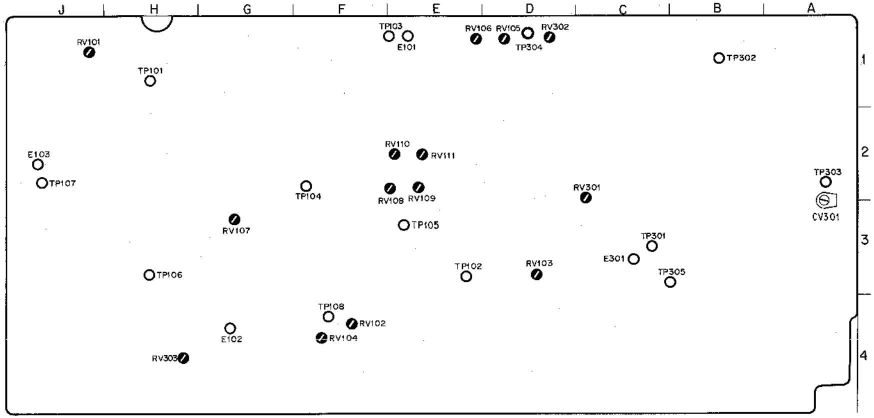
9-11. CHROMA REC CURRENT ADJUSTMENT

Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN: color bar signal · EE mode	TP304/VO-27 (D-1)  130±10mV	⊘ RV302/VO-27 (D-1)

9-12. OA Y/C DELAY ADJUSTMENT

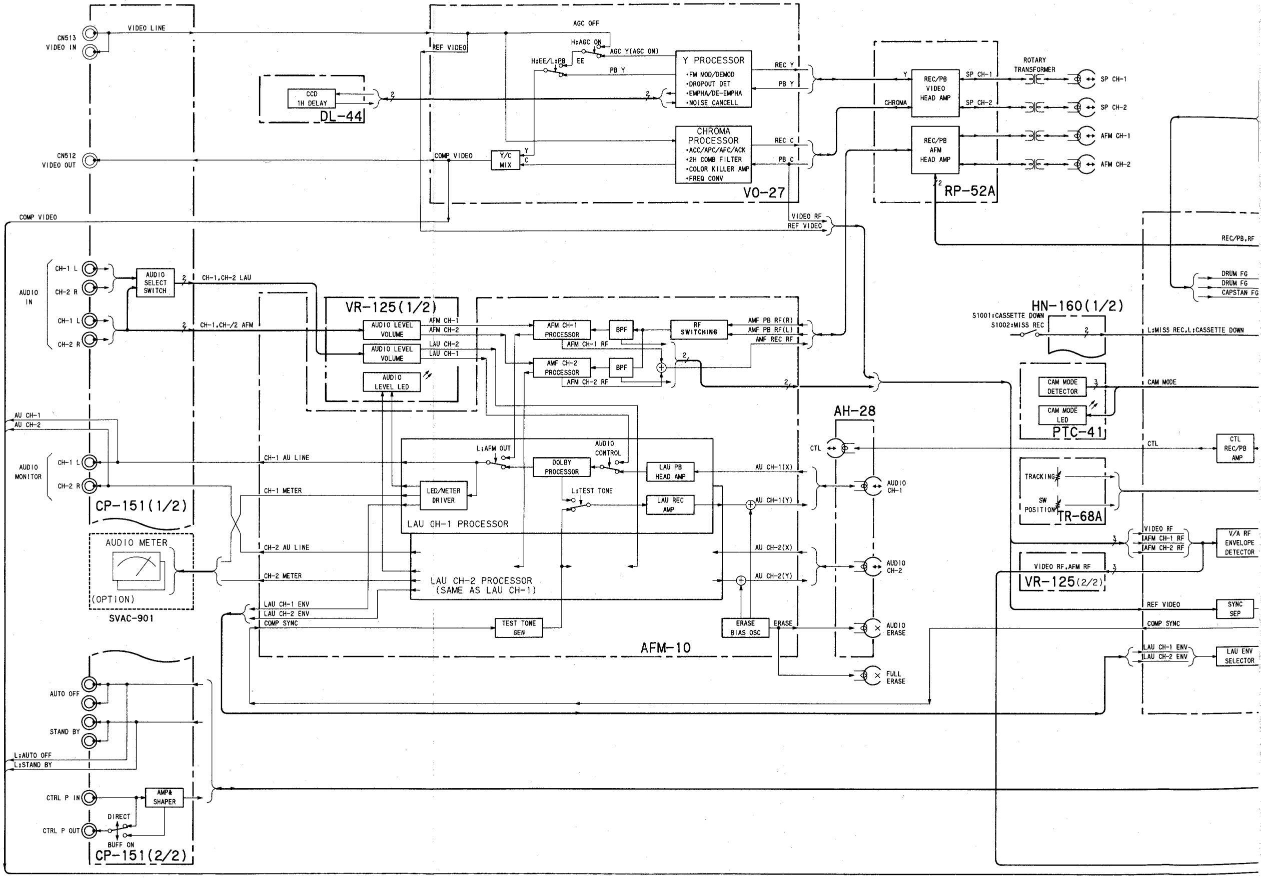
Machine condition for adjustment	Specifications	Adjustments
· VIDEO IN: Pulse & bar signal (MOD 12.5T) · Perform the self-recording/play back with a cassette tape.	VIDEO OUT connector (terminated with 75Ω)  A=B	⊘ RV104/VO-27 (F-4)
	VIDEO OUT connector (terminated with 75Ω)  A=B	⊘ RV301/VO-27 (C-2)

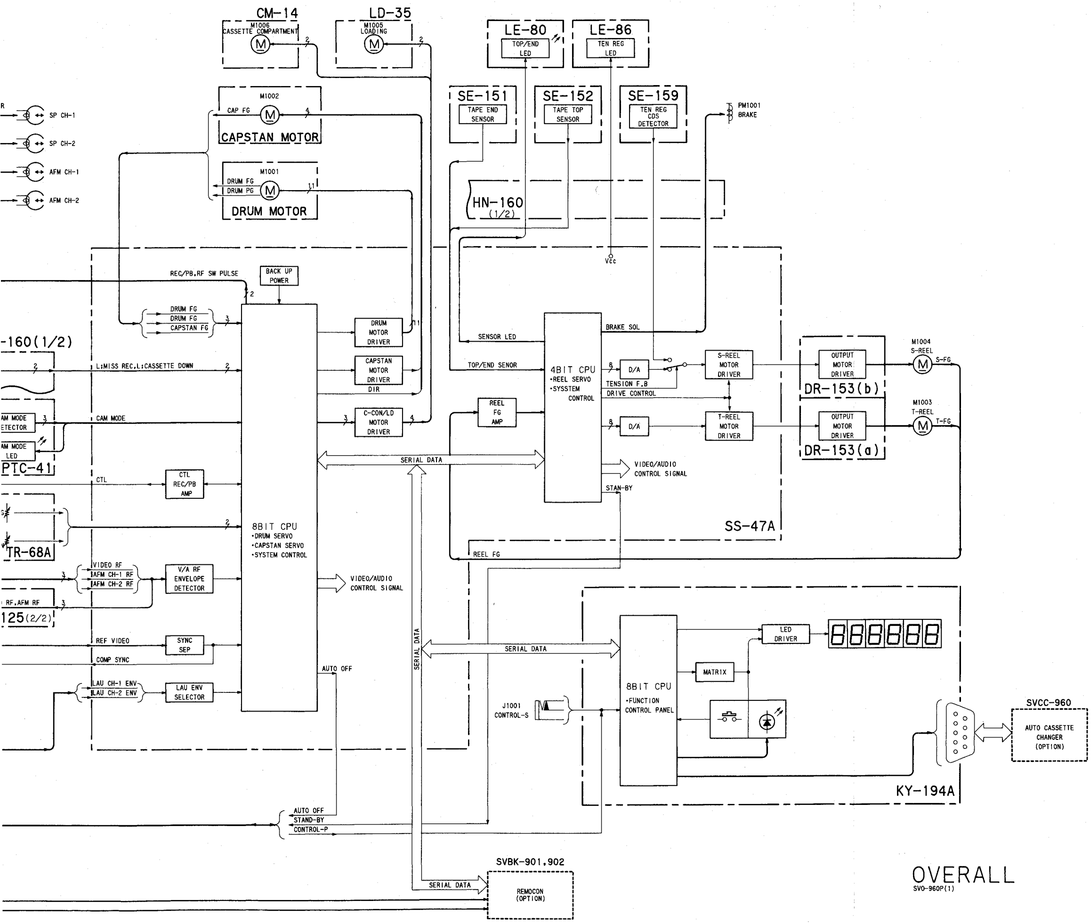
Locations of CV, RVs and TPs on VO-27 Board.


J
H
G
F
E
D
C
B
A
1
2
3
4
RV101
TP101
TP103
E101
RV106
RV105
TP304
RV302
TP302
E103
TP107
RV110
RV111
TP104
RV108
RV109
RV301
TP303
CV301
RV107
TP105
TP301
E301
TP102
RV103
TP305
TP106
TP108
RV102
E102
RV104
RV303

SECTION 10
BLOCK DIAGRAM

OVERALL

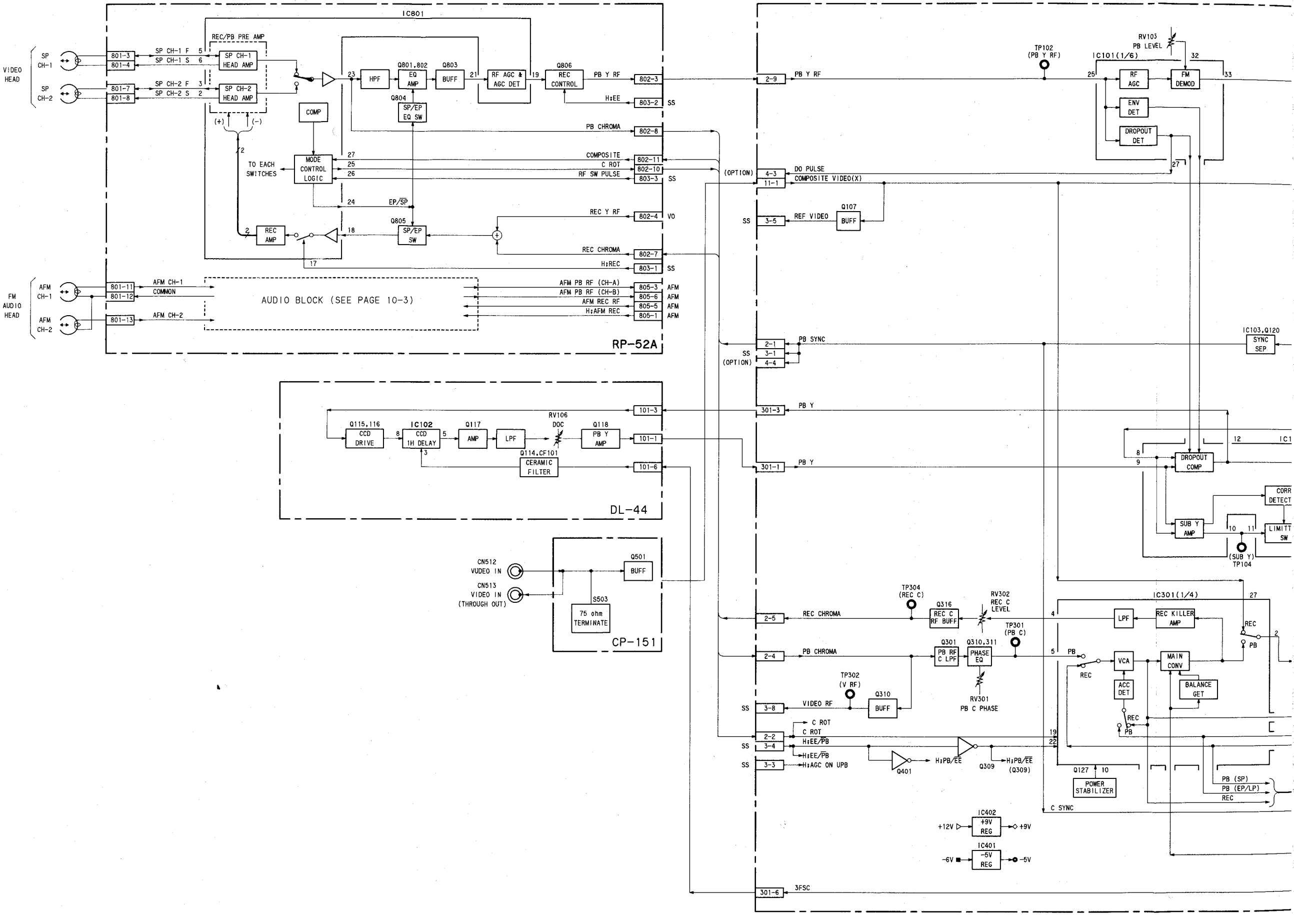

CN513
VIDEO IN
VIDEO LINE
CN512
VIDEO OUT
COMP VIDEO
CCD
1H DELAY
DL-44
REF VIDEO
AGC OFF
H:AGC ON
AGC Y(AGC ON)
H:EE/L:PB
EE
PB Y
Y PROCESSOR
•FM MOD/DEMOD
•DROPOUT DET
•EMPHA/DE-EMPHA
•NOISE CANCELL
REC Y
PB Y
Y/C
MIX
Y
C
CHROMA
PROCESSOR
•ACC/APC/AFC/ACK
•2H COMB FILTER
•COLOR KILLER AMP
•FREQ CONV
REC C
PB C
VO-27
VIDEO RF
REF VIDEO
Y
CHROMA
REC/PB
VIDEO
HEAD AMP
SP CH-1
SP CH-2
REC/PB
AFM
HEAD AMP
ROTARY
TRANSFORMER
SP CH-1
SP CH-2
AFM CH-1
AFM CH-2
RP-52A
REC/PB.RF
DRUM FG
DRUM FG
CAPSTAN FG
AUDIO
IN
CH-1 L
CH-2 R
CH-1 L
CH-2 R
AUDIO
SELECT
SWITCH
CH-1,CH-2 LAU
CH-1,CH-/2 AFM
VR-125(1/2)
AUDIO LEVEL
VOLUME
AUDIO LEVEL
VOLUME
AUDIO
LEVEL LED
AFM CH-1
AFM CH-2
LAU CH-2
LAU CH-1
AFM CH-1
PROCESSOR
AMF CH-2
PROCESSOR
AFM CH-1 RF
AFM CH-2 RF
BPF
BPF
RF
SWITCHING
AMF PB RF(R)
AMF PB RF(L)
AMF REC RF
HN-160(1/2)
S1001:CASSETTE DOWN
S1002:MISS REC
L:MISS REC,L:CASSETTE DOWN
CAM MODE
DETECTOR
CAM MODE
LED
PTC-41
CAM MODE
AU CH-1
AU CH-2
AUDIO
MONITOR
CH-1 L
CH-2 R
CP-151(1/2)
CH-1 AU LINE
CH-1 METER
L:AFM OUT
AUDIO
CONTROL
DOLBY
PROCESSOR
LAU PB
HEAD AMP
LED/METER
DRIVER
L:TEST TONE
LAU REC
AMP
LAU CH-1 PROCESSOR
AH-28
CTL
AU CH-1(X)
AU CH-1(Y)
AUDIO
CH-1
CTL
CTL
REC/PB
AMP
TRACKING
SW
POSITION
TR-68A
AUDIO METER
(OPTION)
SVAC-901
CH-2 AU LINE
CH-2 METER
LAU CH-2 PROCESSOR
(SAME AS LAU CH-1)
AU CH-2(X)
AU CH-2(Y)
AUDIO
CH-2
VIDEO RF
AFM CH-1 RF
AFM CH-2 RF
V/A RF
ENVELOPE
DETECTOR
VIDEO RF,AFM RF
VR-125(2/2)
LAU CH-1 ENV
LAU CH-2 ENV
COMP SYNC
TEST TONE
GEN
ERASE
BIAS OSC
ERASE
AUDIO
ERASE
AFM-10
FULL
ERASE
REF VIDEO
SYNC
SEP
COMP SYNC
LAU CH-1 ENV
LAU CH-2 ENV
LAU ENV
SELECTOR
AUTO OFF
STAND BY
L:AUTO OFF
L:STAND BY
CTRL P IN
AMP&
SHAPER
DIRECT
CTRL P OUT
BUFF ON
CP-151(2/2)
2
3

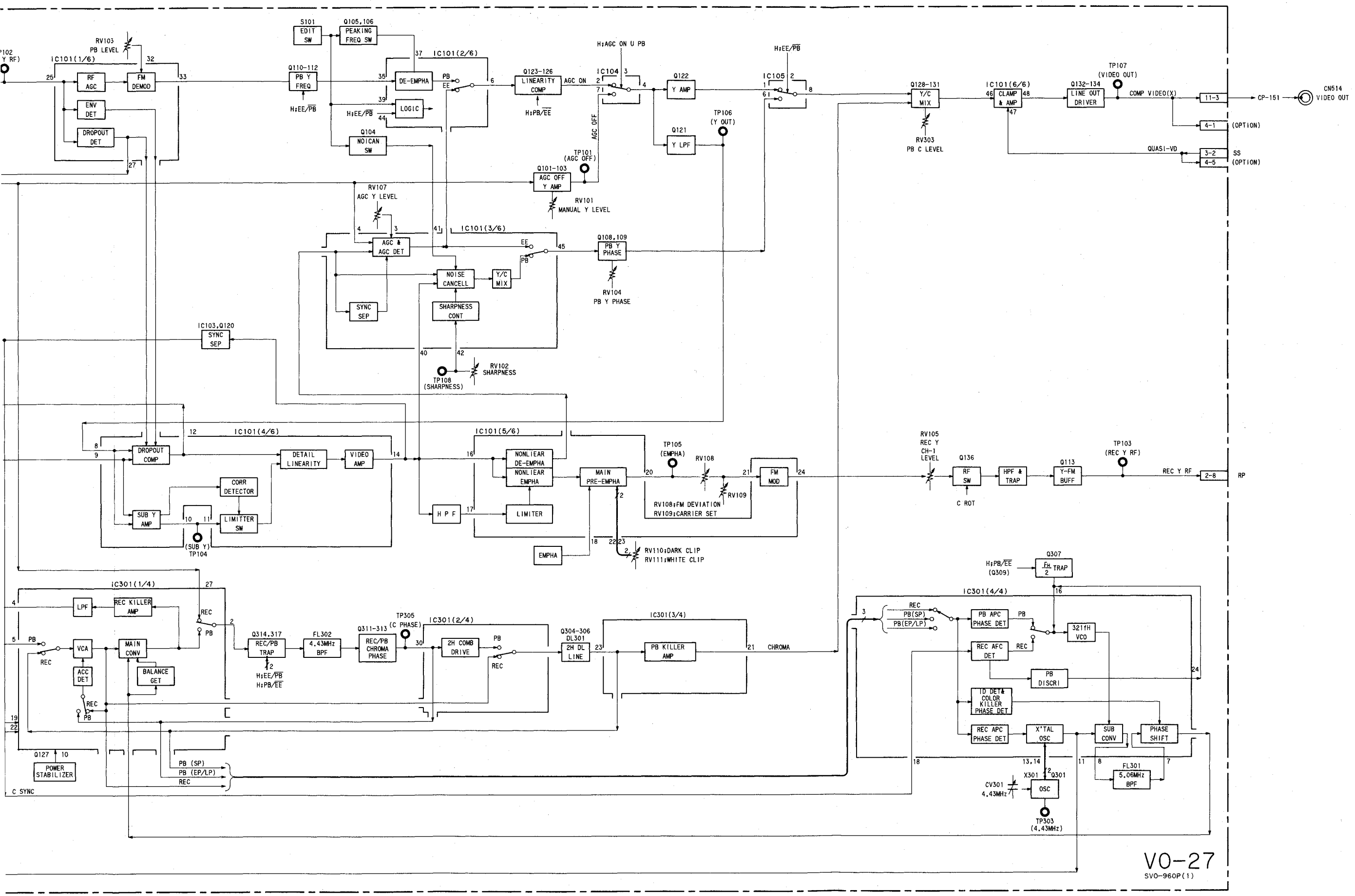

CM-14
M1006
CASSETTE COMPARTMENT
LD-35
M1005
LOADING
LE-80
TOP/END LED
LE-86
TEN REG LED
SE-151
TAPE END SENSOR
SE-152
TAPE TOP SENSOR
SE-159
TEN REG CDS DETECTOR
PM1001
BRAKE
M1002
CAP FG
CAPSTAN MOTOR
M1001
DRUM FG
DRUM PG
DRUM MOTOR
SP CH-1
SP CH-2
AFM CH-1
AFM CH-2
HN-160
(1/2)
Vcc
REC/PB.RF SW PULSE
BACK UP POWER
DRUM FG
DRUM FG
CAPSTAN FG
DRUM MOTOR DRIVER
CAPSTAN MOTOR DRIVER
DIR
C-CON/LD MOTOR DRIVER
-160(1/2)
L:MISS REC,L:CASSETTE DOWN
AM MODE DETECTOR
CAM MODE
AM MODE LED
PTC-41
CTL
CTL REC/PB AMP
TR-68A
8BIT CPU
•DRUM SERVO
•CAPSTAN SERVO
•SYSTEM CONTROL
VIDEO RF
AFM CH-1 RF
AFM CH-2 RF
V/A RF ENVELOPE DETECTOR
RF,AFM RF
125(2/2)
VIDEO/AUDIO CONTROL SIGNAL
REF VIDEO
SYNC SEP
COMP SYNC
LAU CH-1 ENV
LAU CH-2 ENV
LAU ENV SELECTOR
AUTO OFF
SERIAL DATA
SENSOR LED
TOP/END SENOR
BRAKE SOL
4BIT CPU
•REEL SERVO
•SYSSTEM CONTROL
D/A
D/A
TENSION F.B
DRIVE CONTROL
REEL FG AMP
S-REEL MOTOR DRIVER
T-REEL MOTOR DRIVER
VIDEO/AUDIO CONTROL SIGNAL
STAN-BY
SS-47A
OUTPUT MOTOR DRIVER
DR-153(b)
OUTPUT MOTOR DRIVER
DR-153(a)
M1004
S-REEL
S-FG
M1003
T-REEL
T-FG
REEL FG
SERIAL DATA
SERIAL DATA
8BIT CPU
•FUNCTION CONTROL PANEL
LED DRIVER
888888
MATRIX
J1001
CONTROL-S
KY-194A
SVCC-960
AUTO CASSETTE CHANGER (OPTION)
AUTO OFF
STAND-BY
CONTROL-P
SVBK-901,902
SERIAL DATA
REMOCON (OPTION)

OVERALL

SVO-960P(1)

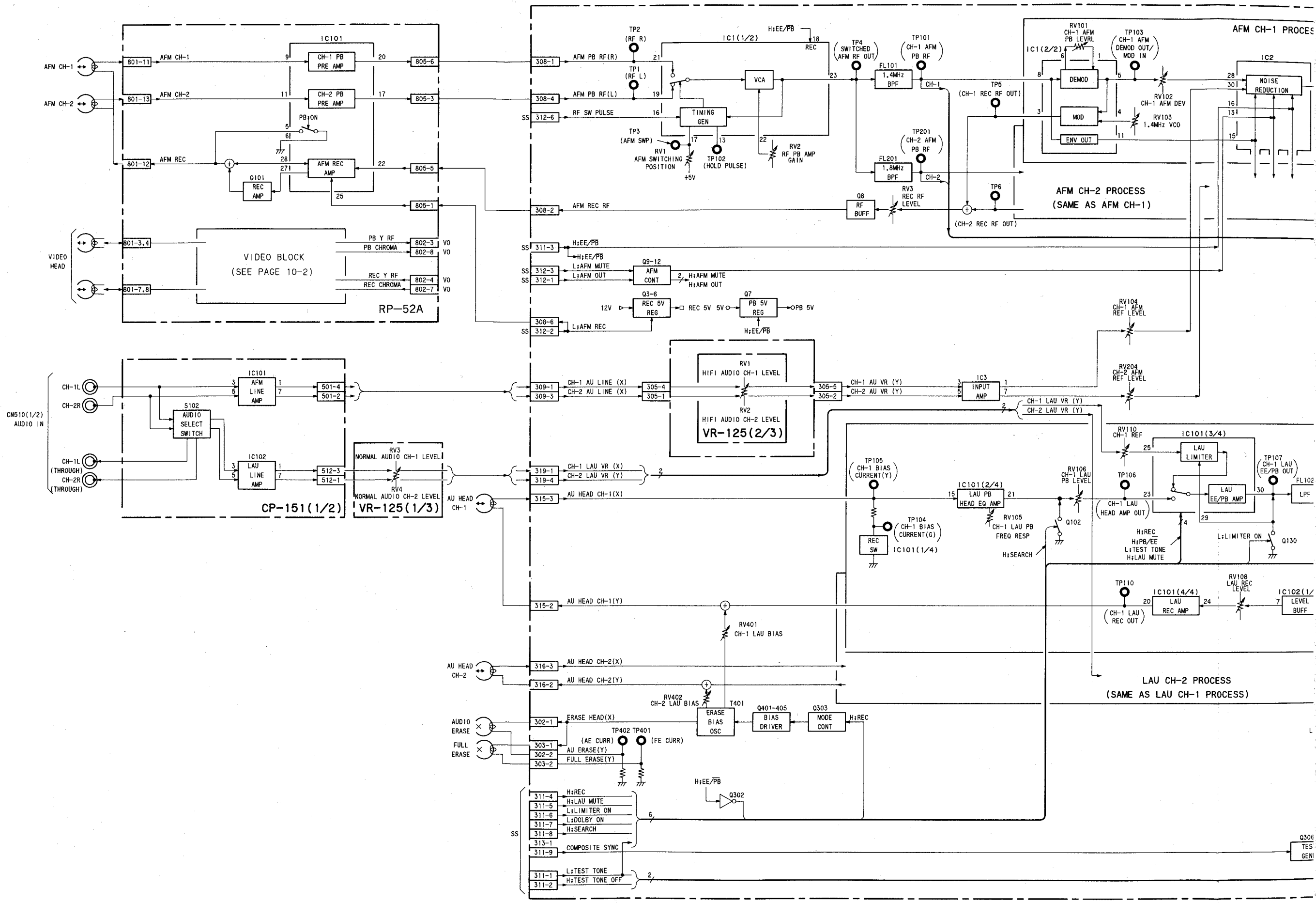
VIDEO SYSTEM

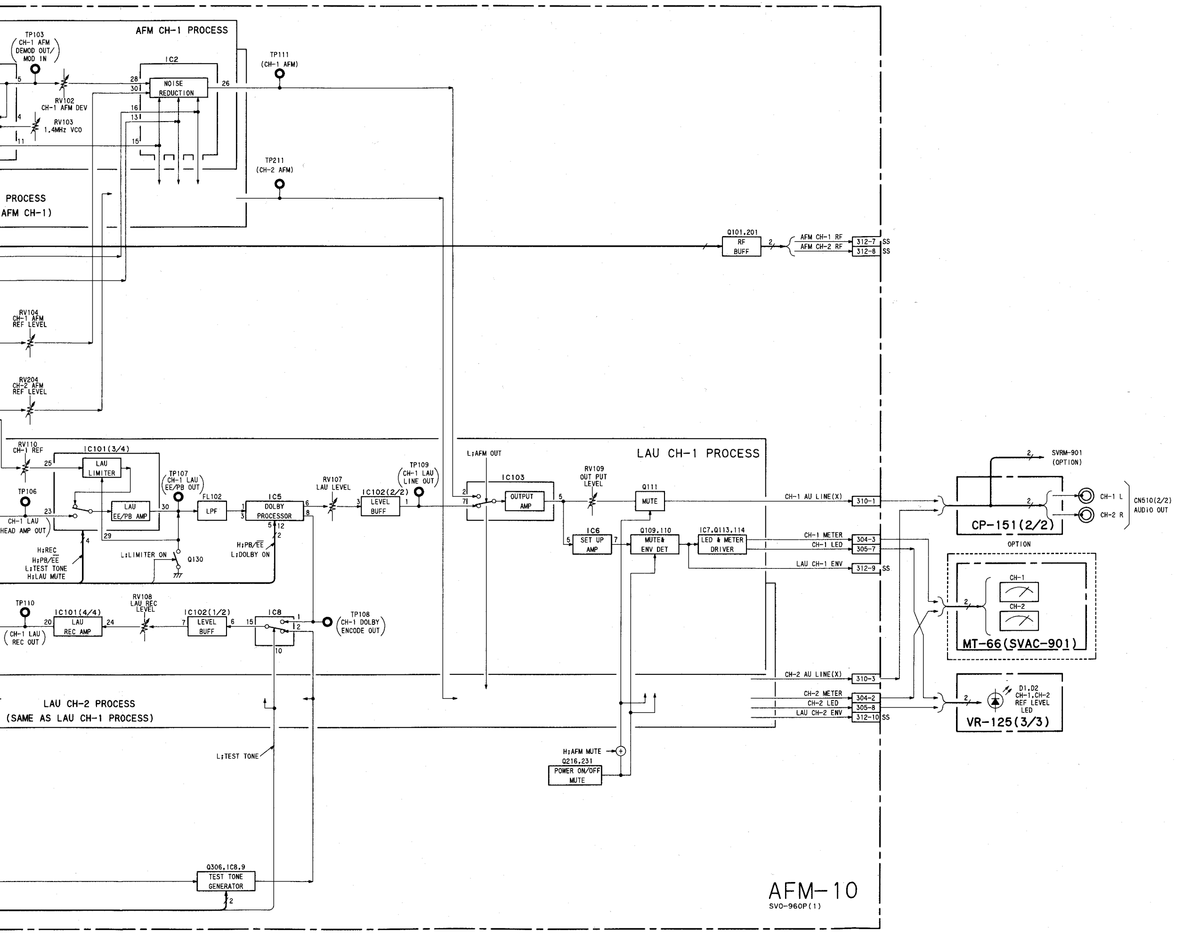

VIDEO HEAD
SP CH-1
SP CH-2
FM AUDIO HEAD
AFM CH-1
AFM CH-2
IC801
REC/PB PRE AMP
801-3
801-4
801-7
801-8
SP CH-1 F 5
SP CH-1 S 6
SP CH-2 F 3
SP CH-2 S 2
SP CH-1 HEAD AMP
SP CH-2 HEAD AMP
(+)
(-)
COMP
TO EACH SWITCHES
MODE CONTROL LOGIC
HPF
Q801,802
EQ AMP
Q803
BUFF
Q804
SP/EP EQ SW
RF AGC & AGC DET
Q806
REC CONTROL
PB Y RF
H:EE
PB CHROMA
COMPOSITE
C ROT
RF SW PULSE
EP/SP
REC Y RF
Q805
SP/EP SW
REC AMP
REC CHROMA
H:REC
802-3
803-2
802-8
802-11
802-10
803-3
802-4
802-7
803-1
SS
VO
AFM
801-11
801-12
801-13
AFM CH-1
COMMON
AFM CH-2
AUDIO BLOCK (SEE PAGE 10-3)
AFM PB RF (CH-A)
AFM PB RF (CH-B)
AFM REC RF
H:AFM REC
805-3
805-6
805-5
805-1
RP-52A
Q115,116
CCD DRIVE
IC102
CCD 1H DELAY
Q117
AMP
LPF
RV106
DOC
Q118
PB Y AMP
Q114,CF101
CERAMIC FILTER
101-3
101-1
101-6
DL-44
CN512
VUDEO IN
CN513
VIDEO IN
(THROUGH OUT)
Q501
BUFF
S503
75 ohm TERMINATE
CP-151
2-9
(OPTION)
4-3
11-1
DO PULSE
COMPOSITE VIDEO(X)
3-5
REF VIDEO
Q107
BUFF
2-1
3-1
4-4
PB SYNC
301-3
PB Y
301-1
301-6
3FSC
TP102
(PB Y RF)
RV103
PB LEVEL
IC101(1/6)
RF AGC
FM DEMOD
ENV DET
DROPOUT DET
IC103,Q120
SYNC SEP
DROPOUT COMP
CORR DETECT
SUB Y AMP
LIMITT SW
(SUB Y)
TP104
2-5
REC CHROMA
TP304
(REC C)
Q316
REC C RF BUFF
RV302
REC C LEVEL
TP301
(PB C)
IC301(1/4)
LPF
REC KILLER AMP
REC
PB
2-4
Q301
PB RF C LPF
Q310,311
PHASE EQ
RV301
PB C PHASE
VCA
MAIN CONV
ACC DET
BALANCE GET
TP302
(V RF)
3-8
VIDEO RF
Q310
BUFF
2-2
3-4
3-3
C ROT
H:EE/PB
H:AGC ON UPB
Q401
H:PB/EE
Q309
H:PB/EE
(Q309)
Q127
POWER STABILIZER
PB (SP)
PB (EP/LP)
C SYNC
IC402
+12V
+9V REG
+9V
IC401
-6V
-5V REG
-5V



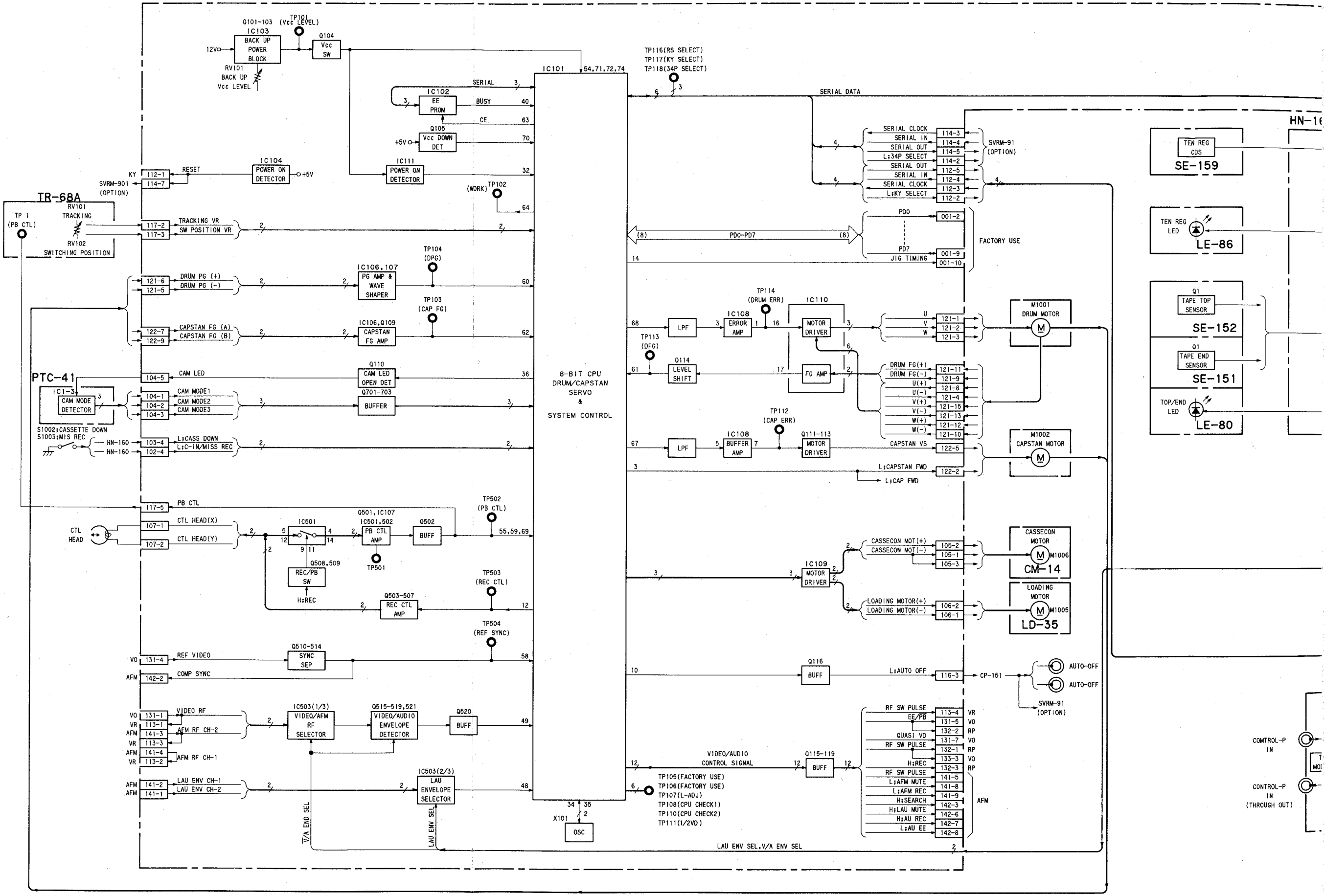
TP102 (Y RF)
RV103 PB LEVEL
IC101(1/6)
25
32
33
RF AGC
FM DEMOD
ENV DET
DROPOUT DET
27
S101 EDIT SW
Q105,106 PEAKING FREQ SW
Q110-112 PB Y FREQ
H;EE/PB
37 IC101(2/6)
35
DE-EMPHA
PB
EE
6
39
LOGIC
44
H;EE/PB
Q104 NOICAN SW
Q123-126 LINEARITY COMP
AGC ON
H;PB/EE
H;AGC ON U PB
IC104
2 3
7 1
4
AGC OFF
Q122 Y AMP
Q121 Y LPF
TP106 (Y OUT)
TP101 (AGC OFF)
Q101-103 AGC OFF Y AMP
RV101 MANUAL Y LEVEL
H;EE/PB
IC105
1 2
6 1
8
Q128-131 Y/C MIX
RV303 PB C LEVEL
IC101(6/6)
46 CLAMP & AMP 48
47
Q132-134 LINE OUT DRIVER
TP107 (VIDEO OUT)
COMP VIDEO(X)
11-3
CP-151
CN514 VIDEO OUT
4-1 (OPTION)
QUASI-VD
3-2
4-5
SS (OPTION)
RV107 AGC Y LEVEL
4
3
41
IC101(3/6)
AGC & AGC DET
EE
PB
45
Q108,109 PB Y PHASE
RV104 PB Y PHASE
NOISE CANCELL
Y/C MIX
SYNC SEP
SHARPNESS CONT
40
42
TP108 (SHARPNESS)
RV102 SHARPNESS
IC103,Q120 SYNC SEP
12 IC101(4/6)
8
9
DROPOUT COMP
DETAIL LINEARITY
VIDEO AMP
14
CORR DETECTOR
SUB Y AMP
10
11
LIMITTER SW
(SUB Y) TP104
IC101(5/6)
16
NONLIEAR DE-EMPHA
NONLIEAR EMPHA
17
HPF
LIMITER
MAIN PRE-EMPHA
2
18
22
23
EMPHA
20
TP105 (EMPHA)
RV108
21
RV109
FM MOD
24
RV108;FM DEVIATION
RV109;CARRIER SET
2
RV110;DARK CLIP
RV111;WHITE CLIP
RV105 REC Y CH-1 LEVEL
Q136 RF SW
C ROT
HPF & TRAP
Q113 Y-FM BUFF
TP103 (REC Y RF)
REC Y RF
2-8
RP
IC301(1/4)
27
4
LPF
REC KILLER AMP
REC
PB
2
5
PB
REC
VCA
MAIN CONV
ACC DET
BALANCE GET
REC
PB
19
22
Q314,317 REC/PB TRAP
2
H;EE/PB
H;PB/EE
FL302 4.43MHz BPF
Q311-313 REC/PB CHROMA PHASE
TP305 (C PHASE)
IC301(2/4)
30
2H COMB DRIVE
PB
REC
Q304-306 DL301 2H DL LINE
23
IC301(3/4)
PB KILLER AMP
21
CHROMA
Q127 10 POWER STABILIZER
PB (SP)
PB (EP/LP)
REC
C SYNC
H;PB/EE (Q309)
Q307 fH/2 TRAP
IC301(4/4)
16
3
REC
PB(SP)
PB(EP/LP)
PB APC PHASE DET
PB
321fH VCO
REC AFC DET
REC
PB DISCRI
24
ID DET& COLOR KILLER PHASE DET
REC APC PHASE DET
X'TAL OSC
SUB CONV
PHASE SHIFT
18
13,14
11
8
7
X301
2
Q301
CV301 4.43MHz
OSC
FL301 5.06MHz BPF
TP303 (4.43MHz)
VO-27
SVO-960P(1)

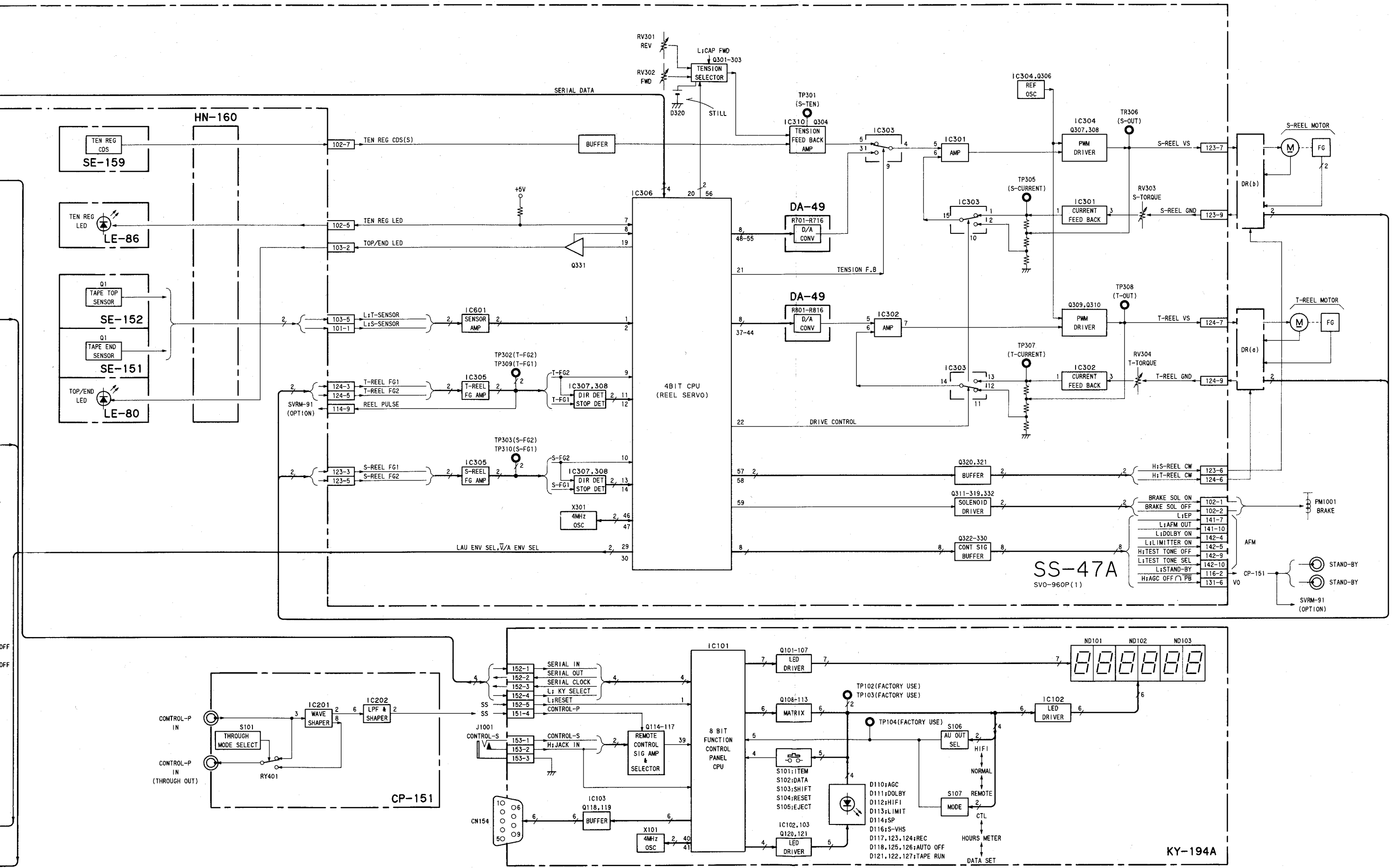
AUDIO SYSTEM


RP-52A
IC101
CH-1 PB PRE AMP
CH-2 PB PRE AMP
AFM REC AMP
Q101 REC AMP
PB:ON
AFM CH-1
AFM CH-2
AFM REC
801-11
801-13
801-12
805-6
805-3
805-5
805-1
VIDEO HEAD
VIDEO BLOCK (SEE PAGE 10-2)
PB Y RF
PB CHROMA
REC Y RF
REC CHROMA
801-3,4
801-7,8
802-3
802-8
802-4
802-7
VO
CP-151(1/2)
CN510(1/2) AUDIO IN
CH-1L
CH-2R
CH-1L (THROUGH)
CH-2R (THROUGH)
S102 AUDIO SELECT SWITCH
IC101 AFM LINE AMP
IC102 LAU LINE AMP
501-4
501-2
512-3
512-1
VR-125(1/3)
RV3 NORMAL AUDIO CH-1 LEVEL
RV4 NORMAL AUDIO CH-2 LEVEL
AU HEAD CH-1
AU HEAD CH-2
AUDIO ERASE
FULL ERASE
308-1 AFM PB RF(R)
308-4 AFM PB RF(L)
312-6 RF SW PULSE
308-2 AFM REC RF
311-3 H:EE/PB
312-3 L:AFM MUTE
312-1 L:AFM OUT
308-6
312-2 L:AFM REC
309-1 CH-1 AU LINE (X)
309-3 CH-2 AU LINE (X)
319-1 CH-1 LAU VR (X)
319-4 CH-2 LAU VR (Y)
315-3 AU HEAD CH-1(X)
315-2 AU HEAD CH-1(Y)
316-3 AU HEAD CH-2(X)
316-2 AU HEAD CH-2(Y)
302-1 ERASE HEAD(X)
303-1 AU ERASE(Y)
302-2 FULL ERASE(Y)
303-2
311-4 H:REC
311-5 H:LAU MUTE
311-6 L:LIMITER ON
311-7 L:DOLBY ON
311-8 H:SEARCH
313-1
311-9 COMPOSITE SYNC
311-1 L:TEST TONE
311-2 H:TEST TONE OFF
SS
TP2 (RF R)
TP1 (RF L)
IC1(1/2)
H:EE/PB
REC
VCA
TIMING GEN
TP3 (AFM SWP)
RV1 AFM SWITCHING POSITION
+5V
TP102 (HOLD PULSE)
RV2 RF PB AMP GAIN
TP4 (SWITCHED AFM RF OUT)
FL101 1.4MHz BPF
TP101 (CH-1 AFM PB RF)
TP201 (CH-2 AFM PB RF)
FL201 1.8MHz BPF
CH-1
CH-2
Q8 RF BUFF
RV3 REC RF LEVEL
TP5 (CH-1 REC RF OUT)
TP6
(CH-2 REC RF OUT)
IC1(2/2)
RV101 CH-1 AFM PB LEVRL
TP103 (CH-1 AFM DEMOD OUT/ MOD IN)
DEMOD
MOD
ENV OUT
RV102 CH-1 AFM DEV
RV103 1.4MHz VCO
AFM CH-1 PROCES
IC2
NOISE REDUCTION
AFM CH-2 PROCESS (SAME AS AFM CH-1)
Q9-12 AFM CONT
H:AFM MUTE
L:AFM OUT
Q3-6 REC 5V REG
12V
REC 5V
Q7 PB 5V REG
PB 5V
H:EE/PB
VR-125(2/3)
RV1 HIFI AUDIO CH-1 LEVEL
RV2 HIFI AUDIO CH-2 LEVEL
305-4
305-1
305-5
305-2
CH-1 AU VR (Y)
CH-2 AU VR (Y)
IC3 INPUT AMP
RV104 CH-1 AFM REF LEVEL
RV204 CH-2 AFM REF LEVEL
CH-1 LAU VR (Y)
CH-2 LAU VR (Y)
TP105 (CH-1 BIAS CURRENT(Y))
TP104 (CH-1 BIAS CURRENT(G))
REC SW
IC101(1/4)
IC101(2/4) LAU PB HEAD EQ AMP
RV105 CH-1 LAU PB FREQ RESP
H:SEARCH
Q102
RV106 CH-1 LAU PB LEVEL
TP106
(CH-1 LAU HEAD AMP OUT)
RV110 CH-1 REF
IC101(3/4)
LAU LIMITER
LAU EE/PB AMP
TP107 (CH-1 LAU EE/PB OUT)
FL102
LPF
H:REC
H:PB/EE
L:TEST TONE
H:LAU MUTE
L:LIMITER ON
Q130
TP110
(CH-1 LAU REC OUT)
IC101(4/4) LAU REC AMP
RV108 LAU REC LEVEL
IC102(1/
LEVEL BUFF
LAU CH-2 PROCESS (SAME AS LAU CH-1 PROCESS)
RV401 CH-1 LAU BIAS
RV402 CH-2 LAU BIAS
T401
ERASE BIAS OSC
Q401-405 BIAS DRIVER
Q303 MODE CONT
H:REC
TP402 (AE CURR)
TP401 (FE CURR)
H:EE/PB
Q302
Q306
TES
GEN


AFM CH-1 PROCESS
TP103 (CH-1 AFM DEMOD OUT/ MOD IN)
IC2
NOISE REDUCTION
RV102 CH-1 AFM DEV
RV103 1.4MHz VCO
TP111 (CH-1 AFM)
TP211 (CH-2 AFM)
PROCESS
AFM CH-1)
Q101,201 RF BUFF
AFM CH-1 RF
AFM CH-2 RF
312-7 SS
312-8 SS
RV104 CH-1 AFM REF LEVEL
RV204 CH-2 AFM REF LEVEL
RV110 CH-1 REF
IC101(3/4)
LAU LIMITER
LAU EE/PB AMP
TP106
CH-1 LAU HEAD AMP OUT
H;REC
H;PB/EE
L;TEST TONE
H;LAU MUTE
TP107 (CH-1 LAU EE/PB OUT)
L;LIMITER ON
Q130
FL102 LPF
IC5 DOLBY PROCESSOR
H;PB/EE
L;DOLBY ON
RV107 LAU LEVEL
IC102(2/2) LEVEL BUFF
TP109 (CH-1 LAU LINE OUT)
L;AFM OUT
IC103 OUTPUT AMP
RV109 OUT PUT LEVEL
Q111 MUTE
LAU CH-1 PROCESS
IC6 SET UP AMP
Q109,110 MUTE& ENV DET
IC7,Q113,114 LED & METER DRIVER
CH-1 AU LINE(X)
310-1
CH-1 METER
CH-1 LED
LAU CH-1 ENV
304-3
305-7
312-9 SS
SVRM-901 (OPTION)
CP-151(2/2)
CH-1 L
CH-2 R
CN510(2/2) AUDIO OUT
OPTION
CH-1
CH-2
MT-66(SVAC-901)
TP110
CH-1 LAU REC OUT
IC101(4/4) LAU REC AMP
RV108 LAU REC LEVEL
IC102(1/2) LEVEL BUFF
IC8
TP108 (CH-1 DOLBY ENCODE OUT)
LAU CH-2 PROCESS
(SAME AS LAU CH-1 PROCESS)
L;TEST TONE
H;AFM MUTE
Q216,231 POWER ON/OFF MUTE
CH-2 AU LINE(X)
310-3
CH-2 METER
CH-2 LED
LAU CH-2 ENV
304-2
305-8
312-10 SS
D1,D2 CH-1,CH-2 REF LEVEL LED
VR-125(3/3)
Q306,IC8,9 TEST TONE GENERATOR
AFM-10
SVO-960P(1)

SERVO/SYSTEM CONTROL


Q101-103
IC103
BACK UP POWER BLOCK
TP101 (Vcc LEVEL)
Q104
Vcc SW
12V
RV101 BACK UP Vcc LEVEL
IC101
54,71,72,74
IC102
EE PROM
SERIAL
BUSY
CE
Q105
Vcc DOWN DET
+5V
IC104
POWER ON DETECTOR
+5V
IC111
POWER ON DETECTOR
RESET
KY
SVRM-901 (OPTION)
112-1
114-7
TR-68A
TP 1 (PB CTL)
RV101 TRACKING
RV102 SWITCHING POSITION
117-2
117-3
TRACKING VR
SW POSITION VR
(WORK) TP102
TP104 (DPG)
IC106,107
PG AMP & WAVE SHAPER
121-6
121-5
DRUM PG (+)
DRUM PG (-)
TP103 (CAP FG)
IC106,Q109
CAPSTAN FG AMP
122-7
122-9
CAPSTAN FG (A)
CAPSTAN FG (B)
PTC-41
104-5
CAM LED
Q110
CAM LED OPEN DET
IC1-3
CAM MODE DETECTOR
104-1
104-2
104-3
CAM MODE1
CAM MODE2
CAM MODE3
Q701-703
BUFFER
S1002:CASSETTE DOWN
S1003:MIS REC
HN-160
103-4
102-4
L:CASS DOWN
L:C-IN/MISS REC
8-BIT CPU DRUM/CAPSTAN SERVO & SYSTEM CONTROL
117-5
PB CTL
CTL HEAD
107-1
107-2
CTL HEAD(X)
CTL HEAD(Y)
IC501
Q501,IC107
IC501,502
PB CTL AMP
TP501
Q502
BUFF
TP502 (PB CTL)
55,59,69
Q508,509
REC/PB SW
H:REC
Q503-507
REC CTL AMP
TP503 (REC CTL)
TP504 (REF SYNC)
VO
131-4
REF VIDEO
AFM
142-2
COMP SYNC
Q510-514
SYNC SEP
131-1
113-1
141-3
113-3
141-4
113-2
VIDEO RF
AFM RF CH-2
AFM RF CH-1
IC503(1/3)
VIDEO/AFM RF SELECTOR
Q515-519,521
VIDEO/AUDIO ENVELOPE DETECTOR
Q520
BUFF
141-2
141-1
LAU ENV CH-1
LAU ENV CH-2
IC503(2/3)
LAU ENVELOPE SELECTOR
V/A END SEL
LAU ENV SEL
X101
OSC
TP116(RS SELECT)
TP117(KY SELECT)
TP118(34P SELECT)
SERIAL DATA
SERIAL CLOCK
SERIAL IN
SERIAL OUT
L:34P SELECT
SERIAL OUT
SERIAL IN
SERIAL CLOCK
L:KY SELECT
114-3
114-4
114-5
114-2
112-5
112-4
112-3
112-2
SVRM-91 (OPTION)
PDO
PD7
JIG TIMING
001-2
001-9
001-10
PDO-PD7
FACTORY USE
TP114 (DRUM ERR)
IC108
ERROR AMP
LPF
IC110
MOTOR DRIVER
TP113 (DFG)
Q114
LEVEL SHIFT
FG AMP
U
V
W
121-1
121-2
121-3
DRUM FG(+)
DRUM FG(-)
U(+)
U(-)
V(+)
V(-)
W(+)
W(-)
121-11
121-9
121-8
121-4
121-15
121-13
121-12
121-10
M1001
DRUM MOTOR
TP112 (CAP ERR)
IC108
BUFFER AMP
Q111-113
MOTOR DRIVER
CAPSTAN VS
122-5
L:CAPSTAN FWD
122-2
L:CAP FWD
M1002
CAPSTAN MOTOR
CASSECON MOT(+)
CASSECON MOT(-)
105-2
105-1
105-3
CASSECON MOTOR
M1006
CM-14
IC109
MOTOR DRIVER
LOADING MOTOR(+)
LOADING MOTOR(-)
106-2
106-1
LOADING MOTOR
M1005
LD-35
Q116
BUFF
L:AUTO OFF
116-3
CP-151
AUTO-OFF
AUTO-OFF
SVRM-91 (OPTION)
VIDEO/AUDIO CONTROL SIGNAL
Q115-119
BUFF
TP105(FACTORY USE)
TP106(FACTORY USE)
TP107(L-ADJ)
TP108(CPU CHECK1)
TP110(CPU CHECK2)
TP111(1/2VD)
RF SW PULSE
EE/PB
QUASI VD
RF SW PULSE
H:REC
RF SW PULSE
L:AFM MUTE
L:AFM REC
H:SEARCH
H:LAU MUTE
H:AU REC
L:AU EE
113-4
131-5
132-2
131-7
132-1
133-3
132-3
141-5
141-8
141-9
142-3
142-6
142-7
142-8
VR
VO
RP
VO
RP
VO
RP
AFM
LAU ENV SEL.V/A ENV SEL
HN-16
TEN REG CDS
SE-159
TEN REG LED
LE-86
Q1
TAPE TOP SENSOR
SE-152
Q1
TAPE END SENSOR
SE-151
TOP/END LED
LE-80
CONTROL-P IN
CONTROL-P IN (THROUGH OUT)


HN-160
SE-159
TEN REG CDS
LE-86
TEN REG LED
SE-152
TAPE TOP SENSOR
SE-151
TAPE END SENSOR
Q1
LE-80
TOP/END LED
102-7 TEN REG CDS(S)
BUFFER
102-5 TEN REG LED
103-2 TOP/END LED
Q331
+5V
103-5 L:T-SENSOR
101-1 L:S-SENSOR
IC601 SENSOR AMP
124-3 T-REEL FG1
124-5 T-REEL FG2
114-9 REEL PULSE
SVRM-91 (OPTION)
IC305 T-REEL FG AMP
TP302(T-FG2)
TP309(T-FG1)
T-FG2
T-FG1
IC307,308 DIR DET STOP DET
123-3 S-REEL FG1
123-5 S-REEL FG2
IC305 S-REEL FG AMP
TP303(S-FG2)
TP310(S-FG1)
S-FG2
S-FG1
X301 4MHz OSC
LAU ENV SEL,V/A ENV SEL
SERIAL DATA
RV301 REV
RV302 FWD
L:CAP FWD
Q301-303
TENSION SELECTOR
D320
STILL
IC306
4BIT CPU (REEL SERVO)
DA-49
R701-R716 D/A CONV
R801-R816 D/A CONV
TENSION F.B
DRIVE CONTROL
TP301 (S-TEN)
IC310 Q304 TENSION FEED BACK AMP
IC303
IC301 AMP
IC302 AMP
IC304,Q306 REF OSC
IC304 Q307,308 PWM DRIVER
Q309,Q310 PWM DRIVER
TR306 (S-OUT)
TP308 (T-OUT)
TP305 (S-CURRENT)
TP307 (T-CURRENT)
IC301 CURRENT FEED BACK
IC302 CURRENT FEED BACK
RV303 S-TORQUE
RV304 T-TORQUE
S-REEL VS 123-7
S-REEL GND 123-9
T-REEL VS 124-7
T-REEL GND 124-9
DR(b)
DR(a)
S-REEL MOTOR
T-REEL MOTOR
M
FG
Q320,321 BUFFER
H:S-REEL CW 123-6
H:T-REEL CW 124-6
Q311-319,332 SOLENOID DRIVER
BRAKE SOL ON 102-1
BRAKE SOL OFF 102-2
L:EP 141-7
L:AFM OUT 141-10
L:DOLBY ON 142-4
L:LIMITTER ON 142-5
H:TEST TONE OFF 142-9
L:TEST TONE SEL 142-10
L:STAND-BY 116-2
H:AGC OFF ∩ PB 131-6
PM1001 BRAKE
AFM
VO
CP-151
STAND-BY
STAND-BY
SVRM-91 (OPTION)
Q322-330 CONT SIG BUFFER
SS-47A
SVO-960P(1)
IC101
8 BIT FUNCTION CONTROL PANEL CPU
152-1 SERIAL IN
152-2 SERIAL OUT
152-3 SERIAL CLOCK
152-4 L: KY SELECT
152-5 L:RESET
151-4 CONTROL-P
SS
SS
J1001 CONTROL-S
153-1 CONTROL-S
153-2 H:JACK IN
153-3
Q114-117 REMOTE CONTROL SIG AMP & SELECTOR
CN154
IC103 Q118,119 BUFFER
X101 4MHz OSC
CP-151
CONTROL-P IN
CONTROL-P IN (THROUGH OUT)
S101 THROUGH MODE SELECT
RY401
IC201 WAVE SHAPER
IC202 LPF & SHAPER
Q101-107 LED DRIVER
Q108-113 MATRIX
S101:ITEM
S102:DATA
S103:SHIFT
S104:RESET
S105:EJECT
IC102,103 Q120,121 LED DRIVER
TP102(FACTORY USE)
TP103(FACTORY USE)
TP104(FACTORY USE)
D110:AGC
D111:DOLBY
D112:HIFI
D113:LIMIT
D114:SP
D116:S-VHS
D117,123,124:REC
D118,125,126:AUTO OFF
D121,122,127:TAPE RUN
S106 AU OUT SEL
HIFI
NORMAL
REMOTE
S107 MODE
CTL
HOURS METER
DATA SET
IC102 LED DRIVER
ND101
ND102
ND103
KY-194A
OFF
OFF

SECTION 11
SEMICONDUCTOR PIN ASSIGNMENT

ICs, transistors and diodes whoses functions are equivalent are described here. Therefore, incompatible device names may be described together. For parts replacement, refer to the Spare Parts section in this manual.

IC PAGE

AN3231K 11-2
AN3932S 11-4
AN3972FC 11-3
AN608P 11-4

BA6238A 11-4
BA7021 11-5

CX20061 11-5
CXA1102P 11-5
CXL5003P 11-11
CXL5005P 11-5

HA118019NT 11-6
HA118027NT 11-7
HD14013BP 11-8

LA7297 11-8
LM2903DQ 11-8
LM2903S 11-8
LM358P 11-9

M5201P 11-9
M6M80011AP 11-9
MC14013BCP 11-8
MC14053BCP 11-9
MC14538BCP 11-9

NJM4562M 11-10

RC4558DD 11-9
RC4560D 11-10
RC78L09A 11-10
RC78M09FA 11-10

S-80250AG 11-10
S-8054HNM 11-10

TA7262P-LB 11-10
TA8424F 11-11
TD62503F 11-11

μPC358C 11-9
μPD4053BC 11-9

TRANSISTOR PAGE

2SA1037K 11-12
2SA1162 11-12
2SA1175 11-12
2SA1226 11-12
2SA812 11-12

2SB1000A 11-12
2SB1142 11-12
2SB1370 11-12
2SB733 11-12
2SB739 11-12

2SC1623 11-12
2SC2712 11-12
2SC2757 11-12
2SC2785 11-12
2SC2878 11-12
2SC3326N 11-12

2SD774 11-12
2SD788 11-12

DTA114EK 11-12
DTA124ES 11-12
DTA144EK 11-12
DTA144ES 11-12
DTB143EK 11-12
DTC124ES 11-12
DTC144EK 11-12
DTC144ES 11-12

PT483F1 11-12

DIODE PAGE

10E-2 11-12
1S2835 11-12
1S2836 11-12
1S2837 11-12
1SS119 11-12
1SS123 11-12
1SS99 11-12

ERB81-004 11-12

GL451V 11-12

MA152WK 11-12

RD??ESB? 11-12
RD??FB? 11-12
RD??JSB 11-12

SLH-34MC3 11-12
SLR-34DC3 11-12
SLR-34MC3 11-12
SLR-34VC3 11-12

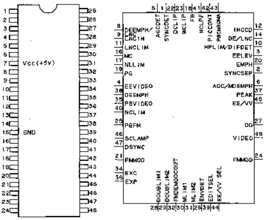
TL0221 11-12

The circuit diagram of each IC is obtained from the IC data book published by the manufacturer.

AN3231K (MATSUSHITA)

VTR LUMINANCE SIGNAL PROCESSOR

– TOP VIEW –


Vcc(+5V)
GND
DEEMPH/LNC
LNC1H
LNCLIM
MC
NLLIM
PG
EEVIDEO
DEEMPH
PBVIDEO
NCLIM
PBFM
SCLAMP
DSYNC
FMMOD
EXC
EXP
AGCDET
SYNCDET
DCLIP
WCLIP
FB
NCLPF
PICCONT
PBCHROMA
1HCCD
DE/LNC
HPLIM/DIFDET
EELEV
EMPH
SYNCSEP
AGC/MDEMPH
PEAK
EE/VV
DO
VIDEO
FMMOD
DOUBLIM1
DOUBLIM2
FMDEMODCOUT
MLIM1
MLIM2
ENVDET
EDITSEL
EE/VV SEL

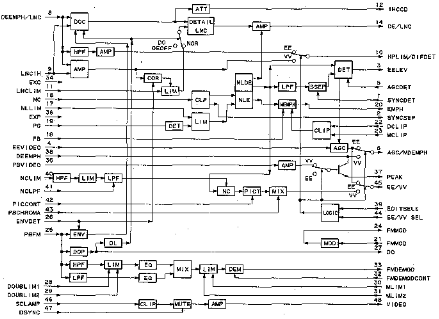
PIN NO	I/O	SYMBOL	PIN NO	I/O	SYMBOL	PIN NO	I/O	SYMBOL
1	I	SYNCDET	17	I	NLLIM	33	O	FMDEMOD
2	O	SYNCSEP	18	I	FB	34	I	EXC
3	O	EELEV	19	I	PG	35	I	PBVIDEO
4	I	EEVIDEO	20	O	EMPH	36	I	EXP
5	I	AGCDET	21	I	FMMOD	37	O	PEAK
6	O	AGC/MDEMPH	22	I	DCLIP	38	I	DEEMPH
7	—	Vcc(+5V)	23	I	WCLIP	39	I	EDITSEL
8	I	DEEMPH/LNC	24	O	FMMOD	40	I	NCLIM
9	I	LNC 1H	25	I	PBFM	41	I	NCLPF
10	O	HPLIM/DIFDET	26	I	ENVDET	42	I	PICCONT
11	I	LNCLIM	27	O	DO	43	I	PBCHROMA
12	O	1H CCD	28	I	DOUBLIM1	44	I	EE/VV SEL
13	—	N.C.	29	I	DOUBLIM2	45	O	EE/VV
14	O	DE/LNC	30	I	MLIM1	46	I	SCLAMP
15	—	GND	31	I	MLIM2	47	I	DSYNC
16	I	MC	32	I	FMDEMODCONT	48	O	VIDEO

INPUT

AGCDET	;AUTO GAIN CONTROL DETECTION
DCLIP	;DARK CLIP
DEEMPH	;MAIN DEEMPHASIS
DEEMPH/LNC	;DEEMPHASIS/LUMINANCE MAIN SIGNAL
DOUBLIM1	;DOUBLE LIMITER HPF SIDE BIAS(1)
DOUBLIM2	;DOUBLE LIMITER HPF SIDE BIAS(2)
DSYNC	;DUMMY SYNC PULSE
EDITSEL	;EDIT MODE SELECT
EEVIDEO	;VIDEO SIGNAL at EE
EE/VV SEL	;EE/VV SELECT
ENVDET	;ENVELOP DETECTION
EXC	;EXCEPT REC Vcc
EXP	;VIDEO EXPENSION
FB	;FEED BACK AMP
FMDEMODCONT	;FM DEMODURATION GAIN CONTROL
FMMOD	;FM MODURATION
LNC1H	;LUMINANCE 1H DELAY SIGNAL
LNCLIM	;LUMINANCE LIMITER
MC	;MAIN CLAMP
MLIM1	;MAIN LIMITER(1)
MLIM2	;MAIN LIMITER(2)
NCLIM	;NC LIMITER
NCLPF	;NC LOW PASS FILTER
NLLIM	;NL LIMITER
PBCHROMA	;PB CHROMINANCE
PBFM	;PB FM PULSE
PBVIDEO	;PB VIDEO SIGNAL
PICCONT	;PICTURE CONTROL
PG	;PG INPUT&2,4,6H
SCLAMP	;SOFT CLAMP
SYNCDET	;SYNC TIP LEVEL DETECTION
WCLIP	;WHITE CLIP

OUTPUT

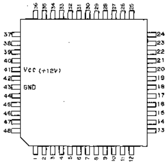
1HCCD	;1H DELAY CCD
AGC/MDEMPH	;AGC/MAIN DEEMPHASIS
DE/LNC	;DEEMPHASIS/LUMINANCE
DO	;DROPOUT PULSE
EELEV	;EE LEVEL ADJUST
EE/VV	;EE/VV SW OUT
EMPH	;MAIN EMPHASIS
FMDEMOD	;FM DEMODURATION
FMMOD	;FM MODURATION
HPLIM/DIFDET	;HPLIM/DIFFERENCE DETECTION
PEAK	;VIDEO PEAKING
SYNCSEP	;SYNC SEPARATE PULSE
VIDEO	;VIDEO OUT


DEEMPH/LNC 8
LNC1H 9
EXC 34
LNCLIM 11
MC 16
NLLIM 17
EXP 36
PG 19
FB 18
EEVIDEO 4
DEEMPH 38
PBVIDEO 35
NCLIM 40
NCLPF 41
PICCONT 42
PBCHROMA 43
ENVDET 26
PBFM 25
DOUBLIM1 28
DOUBLIM2 29
SCLAMP 46
DSYNC 47
DOC
ATT
DETAIL LNC
AMP
HPF
AMP
AMP
DO
DEOFF
NOR
COR
LIM
CLP
LIM
DET
NLDE
NLE
LPF
SSEP
DET
EMPH
CLIP
AGC
AMP
HPF
LIM
LPF
NC
PICT
MIX
LOGIC
MOD
ENV
DL
DOP
HPF
LIM
LPF
EQ
EQ
MIX
LIM
DEM
CLIP
MUTE
AMP
EE
VV
12 1HCCD
14 DE/LNC
10 HPLIM/DIFDET
3 EELEV
5 AGCDET
1 SYNCDET
20 EMPH
2 SYNCSEP
22 DCLIP
23 WCLIP
6 AGC/MDEMPH
37 PEAK
45 EE/VV
39 EDITSELE
44 EE/VV SEL
24 FMMOD
21 FMMOD
27 DO
33 FMDEMOD
32 FMDEMODCONT
30 MLIM1
31 MLIM2
48 VIDEO

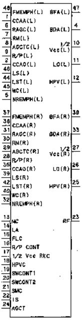
AN3972FC (MATSUSHITA) FLAT PACKAGE

PEAK NOISE REDUCTION FOR HIFI VCR FM AUDIO

– TOP VIEW –

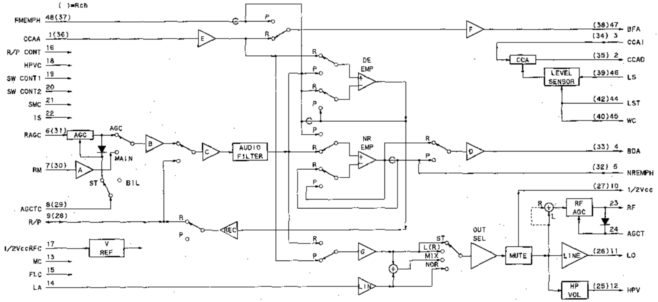


36 35 34 33 32 31 30 29 28 27 26 25
37 38 39 40 41 42 43 44 45 46 47 48
24 23 22 21 20 19 18 17 16 15 14 13
Vcc (+12V)
GND
1 2 3 4 5 6 7 8 9 10 11 12



48 FMEMPH(L)
1 CCAA(L)
6 RAGC(L)
7 RM(L)
8 AGCTC(L)
9 R/P(L)
2 CCAO(L)
46 LS(L)
44 LST(L)
45 WC(L)
5 NREMPH(L)
BFA(L) 47
BDA(L) 4
1/2 Vcc(L) 10
LO(L) 11
HPV(L) 12
37 FMEMPH(R)
36 CCAA(R)
31 RAGC(R)
30 RM(R)
29 AGCTC(R)
28 R/P(R)
35 CCAO(R)
39 LS(R)
42 LST(R)
40 WC(R)
32 NREMPH(R)
BFA(R) 38
BDA(R) 33
1/2 Vcc(R) 27
LO(R) 26
HPV(R) 25
13 MC
14 LA
15 FLC
16 R/P CONT
17 1/2 Vcc REC
18 HPVC
19 SWCONT1
20 SWCONT2
21 SMC
22 IS
24 AGCT
RF 23

PIN NO	I/O	SYMBOL	PIN NO	I/O	SYMBOL	PIN NO	I/O	SYMBOL
1	I	CCAA(L)	17	I	1/2VccRFC	33	O	BDA(R)
2	O	CCAO(L)	18	I	HPVC	34	I	CCAI(R)
3	I	CCAI(L)	19	I	SWCONT1	35	O	CCAO(R)
4	O	BDA(L)	20	I	SWCONT2	36	I	CCAA(R)
5	I	NREMPH(L)	21	I	SMC	37	I	FMEMPH(R)
6	I	RAGC(L)	22	I	IS	38	O	BFA(R)
7	I	RM(L)	23	O	RF	39	I	LS(R)
8	I	AGCTC(L)	24	I	AGCT	40	I	WC(R)
9	I/O	R/P(L)	25	O	HPV(R)	41	–	Vcc(+12V)
10	O	1/2 Vcc(L)	26	O	LO(R)	42	I	LST(R)
11	O	LO(L)	27	O	1/2Vcc(R)	43	–	GND
12	O	HPV(L)	28	I/O	R/P(R)	44	I	LST
13	I	MC	29	I	AGCTC(R)	45	I	WC(L)
14	I	LA	30	I	RM(R)	46	I	LS(L)
15	I	FLC	31	I	RAGC(R)	47	O	BFA(L)
16	I	R/P CONT	32	I	NREMPH(R)	48	I	FMEMPH(L)



( )=Rch
FMEMPH 48(37)
CCAA 1(36)
R/P CONT 16
HPVC 18
SW CONT1 19
SW CONT2 20
SMC 21
IS 22
RAGC 6(31)
RM 7(30)
AGCTC 8(29)
R/P 9(28)
1/2VccRFC 17
MC 13
FLC 15
LA 14
AGC
MAIN
ST
BIL
A
B
C
E
AUDIO FILTER
REC
V REF
P
R
DE EMP
NR EMP
F
D
G
LIN
L(R)
MIX
NOR
OUT SEL
MUTE
LINE
HP VOL
RF AGC
CCA
LEVEL SENSOR
(38)47 BFA
(34) 3 CCAI
(35) 2 CCAO
(39)46 LS
(42)44 LST
(40)45 WC
(33) 4 BDA
(32) 5 NREMPH
(27)10 1/2Vcc
23 RF
24 AGCT
(26)11 LO
(25)12 HPV

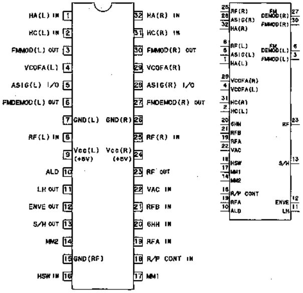
INPUT
1/2 Vcc RFC : 1/2 Vcc RIPPLE FILTERER CAPACITOR
AGCT : AGC TIMING FOR RF
AGCTC (L),(R) ; AGC TIMING CAPACITOR
CCAA (L),(R) : CCA AMP
CCAI (L),(R) ; CCA INPUT
FLC : FORCED LINEAR CONTROL
FMEMPH (L),(R) : FM EMPHASIS CAPACITOR
HPVC : HEADPHONE VOLUME CONTROL DC
IS ; REC AGC/MANUAL CONTROL
LA ; LINEAR AUDIO
LS (L),(R) ; LEVEL SENSOR
LST (L),(R) ; LEVEL SENSOR TIMING
MC ; MUTING CONTROL
NREMPH (L),(R) ; NR EMPHASIS CAPACITOR
RAGC (L),(R) ; REC AGC
RM (L),(R) ; REC MANUAL
R/P CONT ; REC/PB CONTROL
SMC ; AGC ST/BILL/OUTPUT MIX CONTROL
SW CONT1 ; OUTPUT SWITCHING CONTROL1
SW CONT2 ; OUTPUT SWITCHING CONTROL2

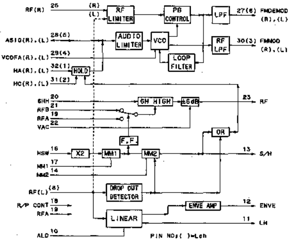
OUTPUT
1/2 Vcc (L),(R) ; 1/2 Vcc OUTPUT
BDA (L),(R) ; BUFFER D AMP
BFA (L),(R) ; BUFFER F AMP
CCAO (L),(R) ; CCA OUTPUT
HPV (L),(R) ; HEADPHONE VOLUME
LO (L),(R) ;LINE OUTPUT
RF ;OUTPUT FOR RF

INPUT/OUTPUT
R/P (L),(R);REC OUT/PB IN

AN3932S (MATSUSHITA)

FM AUDIO AND FM MAIN FOR VCR
– TOP VIEW –


HA(L) IN 1
HC(L) IN 2
FMMOD(L) OUT 3
VCOFA(L) 4
ASIG(L) I/O 5
FMDEMOD(L) OUT 6
7 GND(L)
RF(L) IN 8
9 Vcc(L) (+5V)
ALD 10
LH OUT 11
ENVE OUT 12
S/H OUT 13
MM2 14
15 GND(RF)
HSW IN 16
32 HA(R) IN
31 HC(R) IN
30 FMMOD(R) OUT
29 VCOFA(R)
28 ASIG(R) I/O
27 FMDEMOD(R) OUT
GND(R) 26
25 RF(R) IN
Vcc(R) (+5V) 24
23 RF OUT
22 VAC IN
21 RFB IN
20 6HH IN
19 RFA IN
18 R/P CONT IN
17 MM1
25 RF(R)
28 ASIG(R)
32 HA(R)
8 RF(L)
5 ASIG(L)
1 HA(L)
29 VCOFA(R)
4 VCOFA(L)
31 HC(R)
2 HC(L)
20 6HH
21 RFB
19 RFA
22 VAC
16 HSW
17 MM1
14 MM2
18 R/P CONT
19 RFA
10 ALD
FM DEMOD(R) 27
FMMOD(R) 30
FM DEMOD(L) 6
FMMOD(L) 3
RF 23
S/H 13
ENVE 12
LH 11


RF(R) 25
(R)
(L)
RF LIMITER
PB CONTROL
LPF
27(6) FMDEMOD (R),(L)
ASIG(R),(L) 28(5)
AUDIO LIMITER
VCO
RF LPF
30(3) FMMOD (R),(L)
VCOFA(R),(L) 29(4)
LOOP FILTER
HA(R),(L) 32(1)
HOLD
HC(R),(L) 31(2)
6HH 20
RFB 21
RFA 19
VAC 22
6H HIGH
±6dB
23 RF
OR
F.F.
HSW 16
X2
MM1
MM2
13 S/H
MM1 17
MM2 14
RF(L) (8)
DROP OUT DETECTOR
R/P CONT 18
RFA 19
ENVE AMP
12 ENVE
LINEAR
11 LH
ALD 10
PIN NO:( )=Lch

INPUT
6HH :6H HIGH
HA(R),(L) :HOLD AMP
HC(R),(L) :HOLD CONTROL
HSW :HOLD SWITCH
RF(R),(L) :RF SIGNAL
RFA :RF INPUT A
RFB :RF INPUT B
R/P CONT :REC/PB CONTROL
VAC :VARIABLE AMP CONTROL

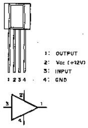
OUTPUT
ENVE :ENVELOPE
FMDEMOD(R),(L) :FM DEMODULATION
FMMOD(R),(L) :FM MODULATION
LH :LINEAR HIGH
RF :RF OUTPUT
S/H :S/H OUTPUT

INPUT/OUTPUT
ASIG:AUDIO SIGNAL

OTHERS
ACD :AUDIO LINEAR DETECTION
MM1 :MONO MULTI1
MM2 :MONO MULTI2
VCOFA(R),(L):VCO FREQUENCY ADJUSTMENT

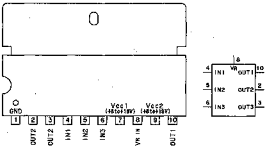
AN608P (MATSUSHITA)

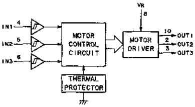
WIDE BAND AMPLIFIER
– PRINTED SIDE VIEW –


1 2 3 4
1: OUTPUT
2: Vcc (+12V)
3: INPUT
4: GND
2
3
1
4

BA6238A (ROHM)

FORWARD AND REVERSE MOTOR DRIVER
– SIDE VIEW –


GND
Vcc1 (+8to+18V)
Vcc2 (+8to+18V)
1
2 OUT2
3 OUT2
4 IN1
5 IN2
6 IN3
7
8 VR IN
9
10 OUT1
8
VR
4 IN1
5 IN2
6 IN3
OUT1 10
OUT2 2
OUT3 3

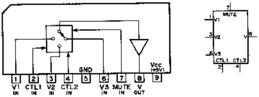

VR
8
IN1 4
IN2 5
IN3 6
MOTOR CONTROL CIRCUIT
MOTOR DRIVER
10 OUT1
2 OUT2
3 OUT3
THERMAL PROTECTOR

INPUT			OUTPUT			OPERATION
IN1	IN2	IN3	OUT1	OUT2	OUT3	
0	0	X	0	0	0	BRAKE
1	0	0	1	0	OPEN	MOTOR CURRENT OUT1→OUT2
1	0	1	0	1	OPEN	MOTOR CURRENT OUT2→OUT1
0	1	0	1	OPEN	0	MOTOR CURRENT OUT1→OUT3
0	1	1	0	OPEN	1	MOTOR CURRENT OUT3→OUT1
1	1	X	0	0	0	BRAKE

0:LOW LEVEL
1:HIGH LEVEL
X:DON'T CARE

BA7021 (ROHM)

3-INPUT VIDEO SWITCH
– SIDE VIEW –

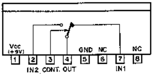

GND
Vcc (+5V)
1 V1 IN
2 CTL1 IN
3 V2 IN
4 CTL2 IN
5
6 V3 IN
7 MUTE IN
8 V OUT
9
7 MUTE
1 V1
3 V2
6 V3
8 V
CTL1 2
CTL2 4

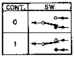
0 : LOW LEVEL
1 : HIGH LEVEL

CTL1	CTL2	V
1	0	V1
0	1	V2
0	0	V3

CX20061 (SONY)

ANALOG SWITCH
– SIDE VIEW –

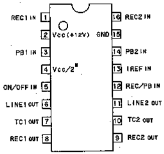

Vcc (+9V)
GND
NC
NC
1
2 IN2
3 CONT.
4 OUT
5
6
7 IN1
8

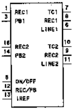


0 ; LOW LEVEL
1 ; HIGH LEVEL

CXA1102P (SONY)

DOLBY TYPE-B NOISE REDUCTION SYSTEM
– TOP VIEW –

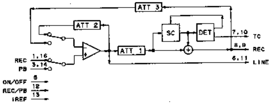

REC1 IN 1
2 Vcc (+12V)
PB1 IN 3
4 Vcc/2*
ON/OFF IN 5
LINE1 OUT 6
TC1 OUT 7
REC1 OUT 8
16 REC2 IN
GND 15
14 PB2 IN
13 IREF IN
12 REC/PB IN
11 LINE2 OUT
10 TC2 OUT
9 REC2 OUT


1 REC1
3 PB1
TC1 7
REC1 8
LINE1 6
16 REC2
14 PB2
TC2 10
REC2 9
LINE2 11
5 ON/OFF
12 REC/PB
13 IREF

*Vcc/2:SINGLE VOLTAGE :+6V
DOUBLE VOLTAGE :GND

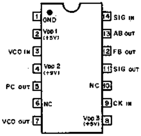
INPUT
IREF :REFERENCE CURRENT SOURCE
ON/OFF:DOLBY NR ON/OFF SELECT(H:OFF/L:ON)
PB :PB(DECODE) INPUT
REC :REC(ENCODE) INPUT
REC/PB:REC/PB SELECT(H:PB/L:REC)

OUTPUT
LINE:LINE(DECODE) OUTPUT
REC :REC(ENCODE) OUTPUT
TC :LEVEL DETECTOR TIME CONSTANT

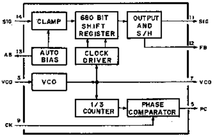

ATT 3
ATT 2
SC
DET
ATT 1
7,10 TC
8,9 REC
6,11 LINE
REC 1,16
PB 3,14
ON/OFF 5
REC/PB 12
IREF 13

CXL5005P (SONY)

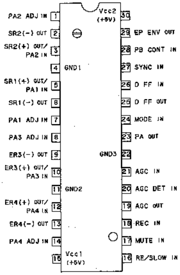
C-MOS CCD 1H DELAY LINE FOR NTSC
– TOP VIEW –

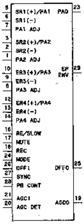

1 GND
2 VDD1 (+5V)
VCO IN 3
4 VDD2 (+9V)
PC OUT 5
6 NC
VCO OUT 7
14 SIG IN
13 AB OUT
12 FB OUT
11 SIG OUT
NC 10
9 CK IN
VDD3 (+5V) 8

AB ; AUTO BIAS DC
FB ; FEEDBACK DC
PC ; PHASE COMPARATOR
SIG ; SIGNAL


SIG 14
CLAMP
680 BIT SHIFT REGISTER
OUTPUT AND S/H
11 SIG
12 FB
AB 13
AUTO BIAS
CLOCK DRIVER
VCO 3
VCO
7 VCO
1/3 COUNTER
PHASE COMPARATOR
5 PC
CK 9

HA118019NT (HITACHI)
VTR PRE REC AMP
– TOP VIEW –


PA2 ADJ IN 1
SR2(−) OUT 2
SR2(+) OUT/ PA2 IN 3
4 GND1
SR1(+) OUT/ PA1 IN 5
SR1(−) OUT 6
PA1 ADJ IN 7
PA3 ADJ IN 8
ER3(−) OUT 9
ER3(+) OUT/ PA3 IN 10
11 GND2
ER4(+) OUT/ PA4 IN 12
ER4(−) OUT 13
PA4 ADJ IN 14
15 Vcc1 (+5V)
Vcc2 (+5V) 30
29 EP ENV OUT
28 PB CONT IN
27 SYNC IN
26 D FF IN
25 D FF OUT
24 MODE IN
23 PA OUT
GND3 22
21 AGC IN
20 AGC DET IN
19 AGC OUT
18 REC IN
17 MUTE IN
16 RE/SLOW IN


5 SR1(+)/PA1
6 SR1(−)
7 PA1 ADJ
3 SR2(+)/PA2
2 SR2(−)
1 PA2 ADJ
10 ER3(+)/PA3
9 ER3(−)
8 PA3 ADJ
12 ER4(+)/PA4
13 ER4(−)
14 PA4 ADJ
16 RE/SLOW
17 MUTE
18 REC
24 MODE
26 DFF1
27 SYNC
28 PB CONT
21 AGCI
20 AGC DET
PAO 23
EP ENV 29
DFFO 25
AGCO 19

INPUT
AGCI ;AGC
AGC DET ;AGC DETECT
DFF1 ;DRUM FF
MODE ;MODE CONTROL (L;SP/H;EP)
MUTE ;REC MUTE CONTROL
PA1–PA4 ;PRE AMP CH1–CH4
PA1–PA4 ADJ ;PRE AMP CH1–CH4 ADJUST
PB CONT ;PB CONTROL (MANUAL/AUTO/STILL)
REC ;REC
RE/SLOW ;REC EQ/SLOW CONTROL
SYNC ;SYNC SEPARATE

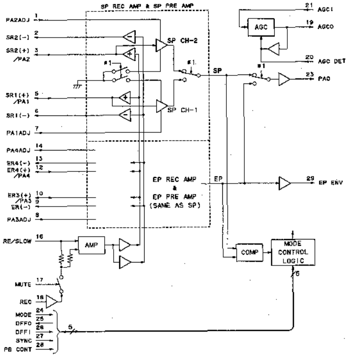
OUTPUT
AGCO ;AGC OUTPUT (PB/REC SELECT)
DFFO ;DRUM FF
EP ENV ;EP ENVELOPE
ER3(+),ER4(+) ;EP REC CH3/CH4(+)
ER3(−),ER4(−) ;EP REC CH3/CH4(−)
PAO ;PRE AMP
SR1(+),SR2(+) ;SP REC CH1/CH2(+)
SR1(−),SR2(−) ;SP REC CH1/CH2(−)

MODE CONTROL

SYMBOL / MODE	DFF1	MODE	PB CONT	RE/ SLOW	DFFO	PAO
SP PB	0	0	1	OPEN	0	CH1
	1	0	1	OPEN	1	CH2
EP PB	0	1	1	OPEN	1	CH4
	1	1	1	OPEN	0	CH3
AUTO	0	–	MIDDLE	OPEN		
	1	–	MIDDLE	OPEN		
SP STILL	0	0	0	OPEN	1	CH4
	1	0	0	OPEN	1	CH2
EP STILL	0	1	0	OPEN	0	CH1
	1	1	0	OPEN	0	CH3
SP SLOW	0	0	0	0	0	CH1
	1	0	0	0	1	CH2
EP SLOW	0	1	0	0	1	CH4
	1	1	0	0	0	CH3

0	CH1
1	CH4
1	CH2
0	CH3

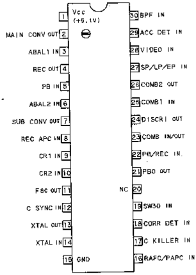
1;HIGH LEVEL
0;LOW LEVEL

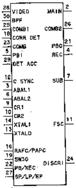

SP REC AMP & SP PRE AMP
PA2ADJ 1
SR2(−) 2
SR2(+) /PA2 3
SR1(+) /PA1 5
SR1(−) 6
PA1ADJ 7
PA4ADJ 14
ER4(−) 13
ER4(+) /PA4 12
ER3(+) /PA3 10
ER(−) 9
PA3ADJ 8
RE/SLOW 16
MUTE 17
REC 18
MODE 24
DFFO 25
DFFI 26
SYNC 27
PB CONT 28
SP CH-2
SP CH-1
#1
SP
EP
EP REC AMP & EP PRE AMP (SAME AS SP)
AMP
COMP
MODE CONTROL LOGIC
AGC
21 AGCI
19 AGCO
20 AGC DET
23 PAO
29 EP ENV
5
6

HA118027NT (HITACHI)

CHROMA SIGNAL PROCESSOR FOR VHS

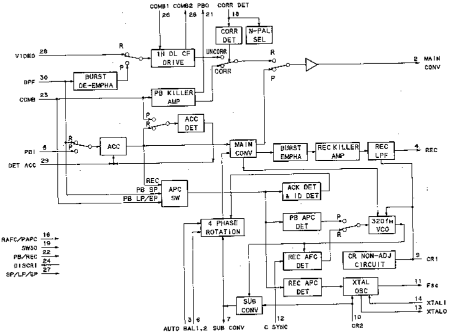
– TOP VIEW –


1 Vcc (+5.1V)
2 MAIN CONV OUT
3 ABAL1 IN
4 REC OUT
5 PB IN
6 ABAL2 IN
7 SUB CONV OUT
8 REC APC IN
9 CR1 IN
10 CR2 IN
11 Fsc OUT
12 C SYNC IN
13 XTAL OUT
14 XTAL IN
15 GND
16 RAFC/PAPC IN
17 C KILLER IN
18 CORR DET IN
19 SW30 IN
20 NC
21 PBO OUT
22 PB/REC IN
23 COMB IN/OUT
24 DISCRI OUT
25 COMB1 IN
26 COMB2 OUT
27 SP/LP/EP IN
28 VIDEO IN
29 ACC DET IN
30 BPF IN


28 VIDEO
30 BPF
25 COMB1
18 CORR DET
23 COMB
5 PBI
29 DET ACC
12 C SYNC
3 ABAL1
6 ABAL2
9 CR1
10 CR2
14 XTAL1
13 XTALO
16 RAFC/PAPC
19 SW30
22 PB/REC
27 SP/LP/EP
MAIN 2
COMB2 26
PBO 21
REC 4
SUB 7
FSC 11
DISCRI 24

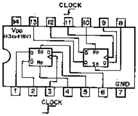
INPUT
ABAL1 ;DE-COUPLING CAPACITOR PIN for AUTO BALANCE
ABAL2 ;AUTO BALANCE DETECT
ACC DET ;ACC DETECT
BPF ;REC ACC/PB BURST DE-EMPHASIS
CR1 ;CAPACITOR AND RESISTOR NOT-ADJUST DETECT
CR2 ;CRYSTAL OSC
(VARIABLE CAPACITANCE DIORE for 4 PHASE GENERATOR BLOCK)
C KILLER ;COLOR KILLER DETECT
COMB ;PB COLOR KILLER AMP
COMB1 ;COMB DRIVE
CORR DET ;UNCORRELATED SIGNAL/MANUAL UNCORRELATED MODE SELECT
/N·PAL MODE SELECT
CSYNC ;COMPOSITE SYNC
PBI ;PB ACC
PB/REC ;H;PB/L;REC SELECT
RAFC/PAPC ;REC AFC/PB APC DETECT
REC APC ;REC APC DETECT
SP/LP/EP ;SP/LP/EP SELECT CONTROL (SP:0–0.8V/LP:1.2–3.3V/EP:3.8–5.1V)
SUB CONV ;421MHz TANK CIRCUIT
SW30 ;SWITCHING PULSE (L;CH-2/H;CH-1)
VIDEO ;REC VIDEO
XTAL ;CRYSTAL OSC

OUTPUT
COMB ;REC COLOR COMB
COMB2 ;PB BURST DE-EMPHASIS
DISCRI ;PB DISCRIMINATE
Fsc ;Fsc
MAIN ;REC COLOR COMB/PB MAIN CONVERTER
PBO ;PB COLOR KILLER AMP/REC COMB
REC ;REC LPF COLOR SIGNAL OUT/PB ID STOP CONTROL
XTAL ;CRYSTAL OSC


COMB1 26
COMB2 26
PBO 21
CORR DET 18
VIDEO 28
BPF 30
COMB 23
PBI 5
DET ACC 29
1H DL CF DRIVE
CORR DET
N-PAL SEL
UNCORR
CORR
R
P
BURST DE-EMPHA
PB KILLER AMP
ACC DET
ACC
MAIN CONV
BURST EMPHA
REC KILLER AMP
REC LPF
2 MAIN CONV
4 REC
REC
PB SP
PB LP/EP
APC SW
ACK DET & ID DET
4 PHASE ROTATION
PB APC DET
320fH VCO
REC AFC DET
CR NON-ADJ CIRCUIT
9 CR1
REC APC DET
XTAL OSC
11 Fsc
14 XTALI
13 XTALO
SUB CONV
10 CR2
3 6 AUTO BAL1,2
7 SUB CONV
12 C SYNC
RAFC/PAPC 16
SW30 19
PB/REC 22
DISCRI 24
SP/LP/EP 27

HD14013BP (HITACHI)
MC14013BCP (MOTOROLA)

C-MOS D-TYPE FLIP-FLOP WITH DIRECT SET/RESET
– TOP VIEW –


CLOCK
14
13
12
11
10
9
8
VDD (+3to+18V)
Q
Q̄
SD
RD
D
GND
1
2
3
4
5
6
7
CLOCK

DIRECT R-S FLIP FLOP

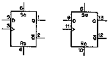
SD	RD	Q	Q̄
0	0	Qn	Q̄n
0	1	0	1
1	0	1	0
1	1	1	1

0:LOW LEVEL
1:HIGH LEVEL

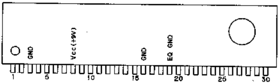
D-TYPE FLIP FLOP

CKn	CKn+1
D	Q
0	0
1	1

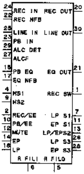
CLOCK CK; ⌐
CKn ; BEFORE CLOCK
CKn+1; AFTER CLOCK


6
SD
5
D
3
Q
1
Q̄
2
RD
4
8
SD
9
D
11
Q
13
Q̄
12
RD
10

LA7297 (SANYO)
AUDIO SIGNAL REC/PB PROCESSOR
– SIDE VIEW –


GND
Vcc(+9V)
GND
EQ GND
1
5
10
15
20
25
30

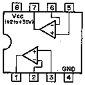
PIN NO	I/O	SYMBOL	PIN NO	I/O	SYMBOL
1	0	REC SW	16	—	GND
2	I	REC/EE	17	I	EQ NFB
3	—	GND	18	I	LP
4	I	HS1	19	—	EQ GND
5	0	R FILO	20	0	REC OUT
6	I	R FILI	21	0	EQ OUT
7	0	LP S1	22	I	REC NFB
8	—	Vcc	23	I	PB IN
9	I	HS2	24	I	REC IN
10	I	PB/EE	25	I	LINE IN
11	0	EP S1	26	0	LP S3
12	I	MUTE	27	—	ALCF
13	0	LP/EP S2	28	0	EP S3
14	I	EP	29	I	ALC DET
15	I	PB EQ	30	0	LINE OUT


24
REC IN
REC OUT
20
22
REC NFB
25
LINE IN
LINE OUT
30
23
PB IN
29
ALC DET
27
ALCF
15
PB EQ
EQ OUT
21
17
EQ NFB
4
HS1
REC SW
1
9
HS2
2
REC/EE
LP S1
7
10
PB/EE
EP S1
11
12
MUTE
LP/EPS2
13
14
EP
LP S3
26
18
LP
EP S3
28
R FILI
R FILO
6
5

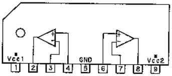
INPUT
ALC DET ;AUTO LIMITER CONTROL DETECTOR
ALCF ;AUTO LIMITER CONTROL FILTER
EP ;EP SWITCH CONTROL
EQ NFB ;PB EQUALIZED NEGATIVE FEEDBACK
HS1,2 ;HEAD SWITCH 1.2
LP ;LP SWITCH CONTROL
LINE IN ;AUDIO LINE
MUTE ;MUTE SWITCH CONTROL
PB/EE ;PB/EE SWITCH CONTROL
PB EQ ;PB EQUALIZED
PB IN ;AUDIO PB LEVEL
REC/EE ;REC/EE SWITCH CONTROL
REC IN ;AUDIO REC LEVEL
REC NFB ;AUDIO REC NEGATIVE FEEDBACK
R FILI ;RIPPLE FILTER

OUTPUT
EP S1–3 ;EP SWITCH
EQ OUT ;PB EQUALIZED
LINE OUT;AUDIO LINE
LP S1–3 ;LP SWITCH
REC OUT ;AUDIO REC LEVEL
REC SW ;REC HEAD VOLTAGE CONTROL SWITCH
R FILO ;RIPPLE FILTER

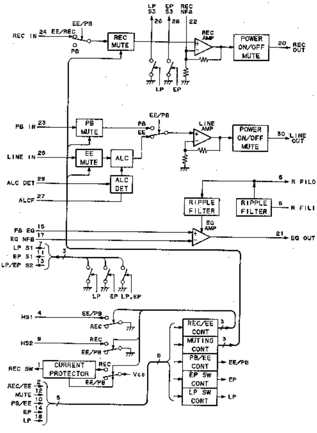
LM2903DQ (RAYTHEON)
DUAL VOLTAGE COMPARATORS
– TOP VIEW –


8
7
6
5
Vcc (+2to+36V)
GND
1
2
3
4

LM2903S (RAYTHEON)
DUAL COMPARATER
– SIDE VIEW –

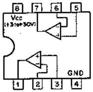

Vcc1 *
GND
Vcc2 *
1
2
3
4
5
6
7
8
9

*Vcc1=Vcc2=+36V MAX


LP S3
EP S3
REC NFB
26
28
22
EE/PB
REC IN
24
EE/REC
PB
REC MUTE
REC AMP
POWER ON/OFF MUTE
20
REC OUT
LP
EP
EE/PB
PB IN
23
PB MUTE
PB
EE
LINE AMP
POWER ON/OFF MUTE
30
LINE OUT
LINE IN
25
EE MUTE
ALC
ALC DET
29
ALC DET
6
R FILO
ALCF
27
RIPPLE FILTER
RIPPLE FILTER
5
R FILI
EQ AMP
PB EQ
15
EQ NFB
17
21
EQ OUT
LP S1
7
EP S1
11
LP/EP S2
13
3
LP
EP
LP,EP
HS1
4
EE/PB
REC
HS2
9
REC
EE/PB
REC SW
1
CURRENT PROTECTOR
REC
EE/PB
Vcc
REC/EE
2
MUTE
12
PB/EE
10
EP
14
LP
18
5
6
REC/EE CONT
3
MUTING CONT
3
PB/EE CONT
EE/PB
EP SW CONT
EP
LP SW CONT
LP

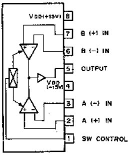
LM358P (TI)
uPC358C (NEC)

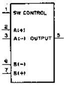
DUAL OPERATIONAL AMPLIFIERS
– TOP VIEW –


8
7
6
5
Vcc
(+3to+30V)
GND
1
2
3
4

M5201P (MITSUBISHI)

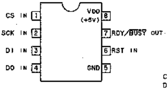
DUAL OPERATIONAL AMPLIFIER WITH SWITCHED OUTPUT
– TOP VIEW –

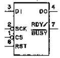

VDD(+15V) 8
7 B (+) IN
6 B (–) IN
5 OUTPUT
VDD (–15V) 4
3 A (–) IN
2 A (+) IN
1 SW CONTROL


1 SW CONTROL
2 A(+)
3 A(–)
OUTPUT 5
6 B(–)
7 B(+)

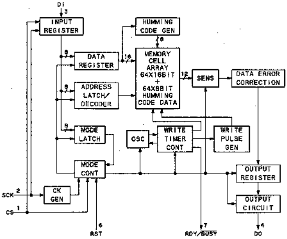
M6M80011AP (MITSUBISHI)

C-MOS 1024 (64x16) BIT ELECTRICALLY ERASABLE PROM
– TOP VIEW –


CS IN 1
SCK IN 2
DI IN 3
DO IN 4
VDD (+5V) 8
7 RDY/BUSY OUT
6 RST IN
GND 5

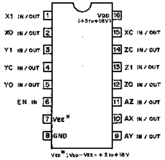

3 DI
DO 4
2 SCK
RDY/BUSY 7
1 CS
6 RST

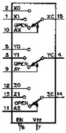
CS	;CHIP SELECT INPUT
DI/DO	;DATA INPUT/OUTPUT
RDY/BUSY	;BUSY OUTPUT
RST	;RESET INPUT
SCK	;CLOCK INPUT


DI 3
INPUT REGISTER
HUMMING CODE GEN
DATA REGISTER
MEMORY CELL ARRAY 64X16BIT + 64X8BIT HUMMING CODE DATA
SENS
DATA ERROR CORRECTION
ADDRESS LATCH/ DECODER
MODE LATCH
OSC
WRITE TIMER CONT
WRITE PULSE GEN
MODE CONT
OUTPUT REGISTER
CK GEN
OUTPUT CIRCUIT
SCK 2
CS 1
6 RST
7 RDY/BUSY
4 DO

MC14053BCP (MOTOROLA)
uPD4053BC (NEC)

C-MOS TRIPLE 2-CHANNEL ANALOG MULTIPLEXER/DEMULTIPLEXER
– TOP VIEW –


X1 IN/OUT 1
X0 IN/OUT 2
Y1 IN/OUT 3
YC IN/OUT 4
Y0 IN/OUT 5
EN IN 6
7 VEE*
8 GND
VDD (+3to+18V) 16
15 XC IN/OUT
14 ZC IN/OUT
13 Z1 IN/OUT
12 Z0 IN/OUT
11 AZ IN/OUT
10 AX IN/OUT
9 AY IN/OUT
VEE*; VDD–VEE= +3 to+18V

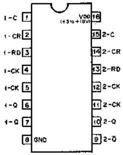

2 X0
1 X1
XC 15
10 OPEN AX
5 Y0
3 Y1
YC 4
9 OPEN AY
12 Z0
13 Z1
ZC 14
11 OPEN AZ
EN 6
VEE 7

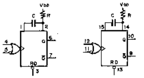
0; LOW LEVEL
1; HIGH LEVEL
X; DON'T CARE.

CONT. INPUTS		ON CHANNEL
EN	A (X,Y,Z,)	
0	0	0
0	1	1
1	X	OPEN

MC14538BCP (MOTOROLA)

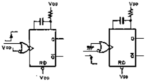
C-MOS DUAL RETRIGGERABLE MONOSTABLE MULTIVIBRATOR
– TOP VIEW –


1-C 1
1-CR 2
1-RD 3
1-CK 4
1-CK 5
1-Q 6
1-Q 7
8 GND
VDD (+3to+18V) 16
15 2-C
14 2-CR
13 2-RD
12 2-CK
11 2-CK
10 2-Q
9 2-Q̄

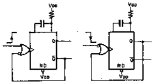

VDD
C
R
1
2
4
5
Q 6
Q̄ 7
RD
3
VDD
C
R
15
14
12
11
Q 10
Q̄ 9
RD
13

OUTPUT PULSE WIDTH = C·R

RETRIGGERABLE M.M.V

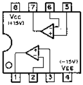

VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

NON-RETRIGGERABLE M.M.V


VDD
Q
Q̄
RD
VDD
VDD
Q
Q̄
RD
VDD

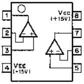
RC4558DD (RAYTHEON)

OPERATIONAL AMPLIFIER
– TOP VIEW –

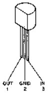

8
7
6
5
Vcc (+15V)
(–15V) VEE
1
2
3
4

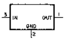
RC4560D (RAYTHEON)
NJM4562M (JRC) FLAT PACKAGE

OPERATIONAL AMPLIFIER
– TOP VIEW –

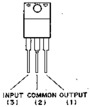

1
2
3
4
Vcc (+15V)
8
7
6
5
VEE (-15V)
–
+

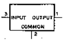
RC78L09A (RAYTHEON) + 9V
POSITIVE VOLTAGE REGULATOR (100mA)


OUT 1
GND 2
IN 3

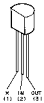

3
IN
OUT
1
GND
2

RC78M09FA (RAYTHEON) + 9V
POSITIVE VOLTAGE REGULATOR
– FRONT VIEW –

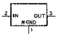

INPUT (3)
COMMON (2)
OUTPUT (1)


3
INPUT
OUTPUT
1
COMMON
2

S-80250AG (SEIKO I AND E) – 5V
C-MOS VOLTAGE REGULATOR

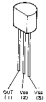


* S-802?? → Vdd
S-812?? → Vss


2
IN
OUT
3
*GND
1

S-8054HNM (SEIKO I AND E) 4.50V – 4.70V

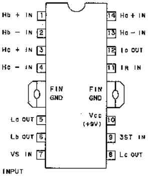
VOLTAGE DETECTOR

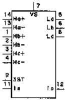

OUT (1)
Vdd (2)
Vss (3)

2
Vdd
OUT
1
Vss
3

TA7262P-LB (TOSHIBA)

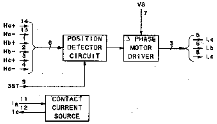
MOTOR DRIVER FOR DIRECT CURRENT COMPACT MOTOR
– TOP VIEW –


Hb + IN 1
Hb – IN 2
Hc + IN 3
Hc – IN 4
FIN GND
La OUT 5
Lb OUT 6
VS IN 7
14 Ha + IN
13 Ha – IN
12 Io OUT
11 IR IN
FIN GND
Vcc (+9V) 10
9 3ST IN
8 Lc OUT


7
VS
14 Ha+
13 Ha–
1 Hb+
2 Hb–
3 Hc+
4 Hc–
9 3ST
11 IR
La 5
Lb 6
Lc 8
Io 12

INPUT
3ST : MOTOR ROTATIONAL DIRECTION CONTROL
Ha,Hb,Hc +/– : HOLE ELEMENT AMP
IR : CONTACT CURRENT SOURCE
VS : MOTOR INPUT VOLTAGE

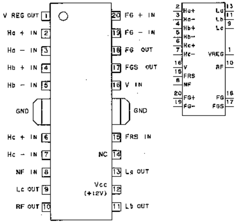
OUTPUT
Io : CONTACT CURRENT SOURCE
La,Lb,Lc : 3 PHASE MOTOR DRIVE


VS
7
Ha+ 14
Ha– 13
Hb+ 1
Hb– 2
Hc+ 3
Hc– 4
6
POSITION DETECTOR CIRCUIT
3 PHASE MOTOR DRIVER
3
5 La
6 Lb
8 Lc
3ST 9
IR 11
Io 12
CONTACT CURRENT SOURCE

TA8424F (TOSHIBA)

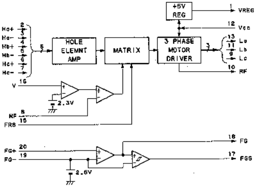
MOTOR DRIVER FOR DIRECT CURRENT COMPACT MOTOR

– TOP VIEW –


V REG OUT 1
Ha + IN 2
Ha – IN 3
Hb + IN 4
Hb – IN 5
GND
Hc + IN 6
Hc – IN 7
NF IN 8
Lc OUT 9
RF OUT 10
20 FG + IN
19 FG – IN
18 FG OUT
17 FGS OUT
16 V IN
GND
15 FRS IN
NC 14
13 La OUT
Vcc (+12V) 12
11 Lb OUT
Ha+
Ha–
Hb+
Hb–
Hc+
Hc–
V
FRS
NF
FG+
FG–
La
Lb
Lc
VREG
RF
FG
FGS

INPUT	
FG +/-	FG INPUT AMP
FRS	MOTOR ROTATIONAL DIRECTION CONTROL
Ha.Hb.Hc +/-	HOLE ELEMENT AMP
NF	FEEDBACK OUTPUT CURRENT
V	CONTROL VOLTAGE

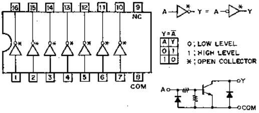
OUTPUT	
FG	FG GAIN AMP
FGS	FG HYSTERESIS AMP
La.Lb.Lc	3 PHASE MOTOR DRIVE
RF	OUTPUT CURRENT DETECTOR
V REG	VOLTAGE REGULATOR


+5V REG
VREG
Vcc
Ha+
Ha–
Hb+
Hb–
Hc+
Hc–
HOLE ELEMNT AMP
MATRIX
3 PHASE MOTOR DRIVER
La
Lb
Lc
RF
V
2.3V
NF
FRS
FG+
FG–
2.6V
FG
FGS

TD62503F (TOSHIBA) FLAT PACKAGE
TD62503P (TOSHIBA)

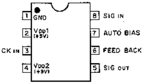
TRANSISTOR ARRAY, INVERTING DRIVER WITH OPEN COLLECTOR

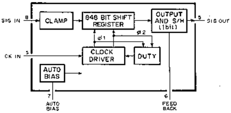
– TOP VIEW –


16
15
14
13
12
11
10
9
NC
1
2
3
4
5
6
7
8
COM
A
Y = A
Y
Y=Ā
A Y
0 1
1 0
0 ; LOW LEVEL
1 ; HIGH LEVEL
* ; OPEN COLLECTOR
A
Y
COM

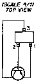
CXL5003M (SONY) FLAT PACKAGE
CXL5003P (SONY)
C-MOS CCD FOR PAL 1 H DELAY LINE

— TOP VIEW —

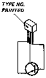

1 GND
2 VDD1 (+5V)
CK IN 3
4 VDD2 (+9V)
8 SIG IN
7 AUTO BIAS
6 FEED BACK
5 SIG OUT


SIG IN 8
CLAMP
848 BIT SHIFT REGISTER
OUTPUT AND S/H (1bit)
5 SIG OUT
φ1
φ2
CK IN 5
CLOCK DRIVER
DUTY
AUTO BIAS
7 AUTO BIAS
6 FEED BACK

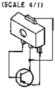
TRANSISTOR, DIODE


(SCALE 4/1)
TOP VIEW
3
2
1

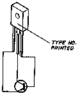
2SA1037K
2SA1162
2SA1226
2SA812


TYPE NO.
PRINTED

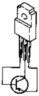
2SA1175



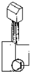
2SB1000A


TYPE NO.
PRINTED

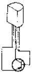
2SB1142



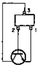
2SB1370



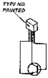
2SB733



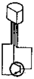
2SB739



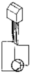
2SC1623
2SC2712
2SC2757
2SC3326N


TYPE NO.
PRINTED

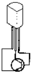
2SC2785



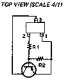
2SC2878



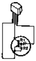
2SD774



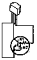
2SD788


TOP VIEW (SCALE 4/1)
3
2
1
R1
R2

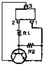
DTA114EK (R1 = 10K, R2 = 10K)
DTA144EK (R1 = 47K, R2 = 47K)
DTB143EK (R1 = 4.7K, R2 = 4.7K)



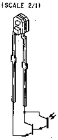
DTA124ES (R1 = 22K, R2 = 22K)
DTA144ES (R1 = 47K, R2 = 47K)



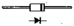
DTC124ES (R1 = 22K, R2 = 22K)
DTC144ES (R1 = 47K, R2 = 47K)



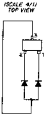
DTC144EK (R1 = 47K, R2 = 47K)



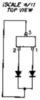
PT483F1



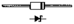
10E-2
1SS119


(SCALE 4/1)
TOP VIEW
3
2
1

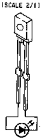
1S2835
1S2836


(SCALE 4/1)
TOP VIEW
3
2
1

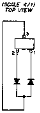
1S2837
MA152WK



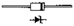
1SS99
ERB81-004



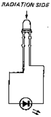
GL451V ; RED


(SCALE 4/1)
TOP VIEW
3
2
1

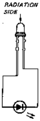
1SS123
1SS226
1SS271
DA204K
DA204U
HSM88AS
MA153



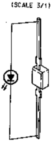
RD ? ?ESB ?
RD ? ?FB ?
RD ? ?JSB ?


RADIATION SIDE

SLH-34MC3 ; GREEN


RADIATION SIDE

SLR-34MC3 ; GREEN
SLR-34VC3 ; RED
SLR-34DC3 ; ORANGE



TLO221

SECTION 12
PRINTED WIRING BOARD AND SCHEMATIC DIAGRAM

CIRCUIT FUNCTION OF THE PRINTED CIRCUIT BOARD

SYSTEM	BOARD	CIRCUIT FUNCTION
VIDEO	RP-52A	Video/AFM Head Amp
	VO-27	Y/C Video Process
	DL-44	CCD 1H Delay
AUDIO	AFM-10	AFM Process/Normal Audio Process
	AH-28	Audio/Erase/CTL Head
	VR-125	Audio Level Control
SERVO SYSTEM CONTROL	SS-47A	Servo, System Control
	DA-49	DA Converter
	DR-153 (a)	Driver for T-Reel
	DR-153 (b)	Driver for S-Reel
	CM-14	Cassette Compartment Motor
	LD-35	Loading Motor
	LE-80	Tape Top/End LED
	LE-86	Tension Regulator LED
	PTC-41	CAM Mode Detect
	KY-194A	Function Key Board
	SE-151	Tape End Sensor
	SE-152	Tape Top Sensor
	SE-159	Tension Regulator CDS Detect
	TR-68A	Tracking/Switch Position Volume
POWER	AC-103A	AC Input
	—	Switching Regulator
OTHER	CP-151	Connector Panel
	HN-160	Connection

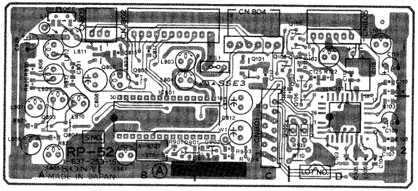
RP-52A; VIDEO/AFM HEAD AMP

RP-52A (1-637-253-15) A side

CN801	C-2
CN802	B-1
CN803	A-1
CN804	C-1
CN805	D-1
D801	*B-1
IC101	D-2
IC801	B-2
Q101	C-1
Q102	*C-1
Q103	D-1
Q104	D-2
Q105	C-2
Q106	D-2
Q107	D-1
Q108	C-1
Q109	D-1
Q801	*A-2
Q802	*A-2
Q803	A-2
Q804	A-2
Q805	B-1
Q806	B-2
Q807	*B-1
Q808	*B-1
Q901	B-2
Q902	C-2
S1	A-1

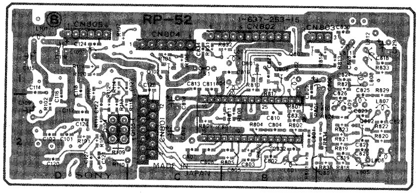
* mark ; B side mount

A SIDE



RP-52/A - A SIDE -
1-637-253-15
SVO-960
SVO-960P

B SIDE



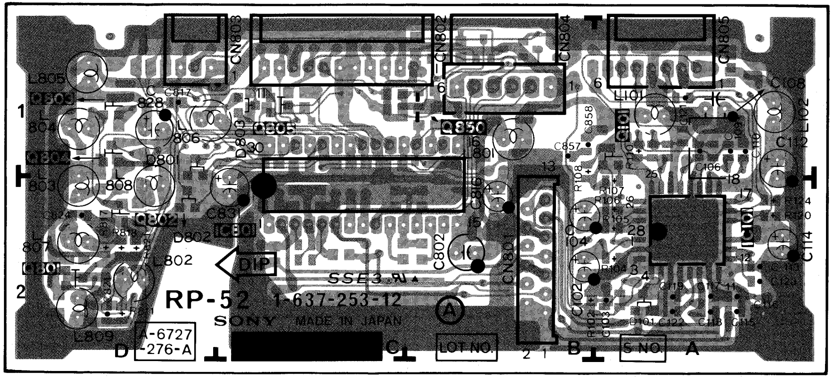
RP-52/A - B SIDE -
1-637-253-15
SVO-960
SVO-960P

RP-52A ; VIDEO/AFM HEAD AMP

RP-52A (1-637-253-12) A SIDE

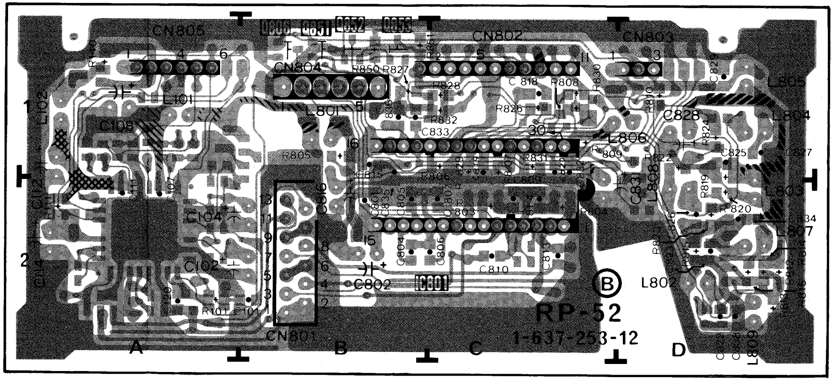
CN801	B-2
CN802	B-1
CN803	C-1
CN804	B-1
CN805	A-1
D101	A-2
D801	D-1
D802	D-2
D803	C-1
IC101	A-2
IC801	C-2
Q101	A-1
Q801	D-2
Q802	D-2
Q803	D-1
Q804	D-1
Q805	C-1
Q806	⋆B-1
Q850	B-1
Q851	⋆B-1

⋆ mark ; B SIDE MOUNT.


CN803
CN802
CN804
CN805
L805
L804
L803
L807
L809
L802
L101
L102
IC801
IC101
CN801
DIP
RP-52
1-637-253-12
SONY MADE IN JAPAN
SSE3
A-6727
-276-A
LOT NO.
S NO.
A
B
C
D
1
2

RP-52/A —A SIDE—
1-637-253-12(1)
SVO-960
SVO-960P

A Side is the same as COMPONENT Side

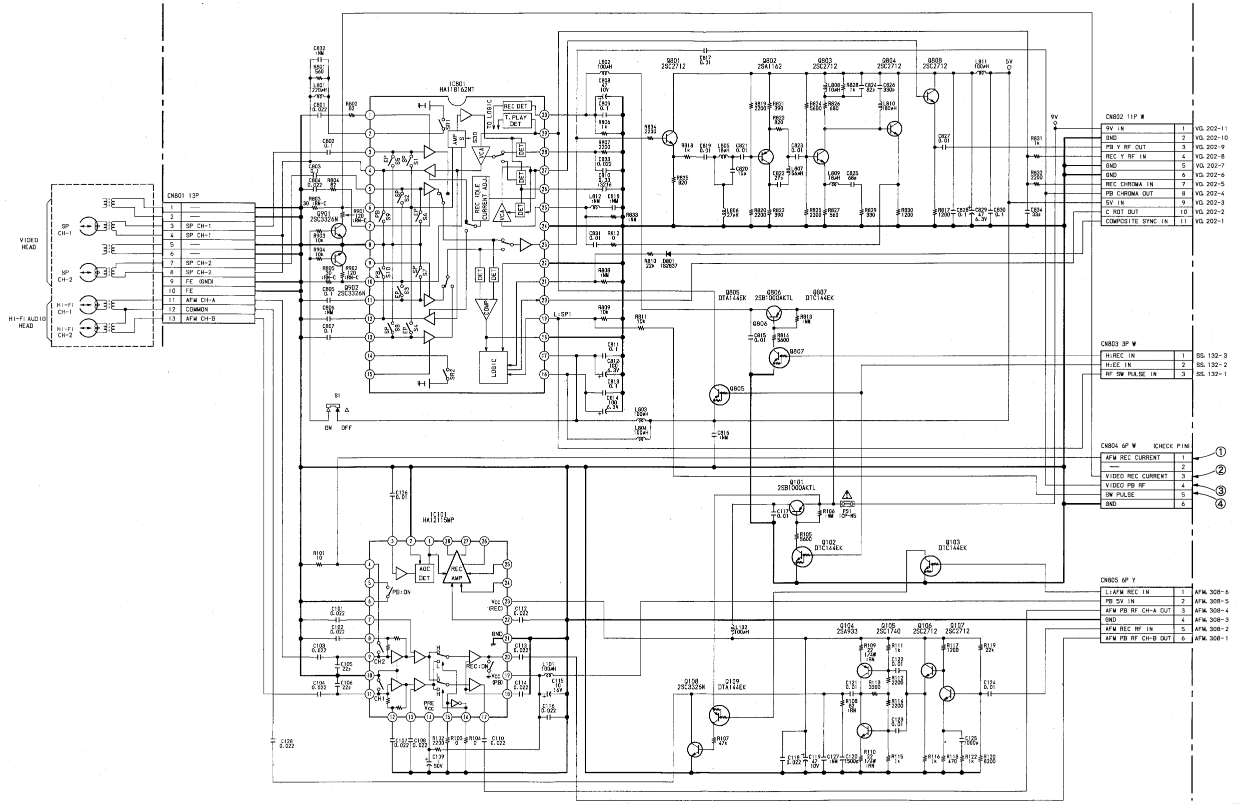

CN805
CN804
CN802
CN803
CN801
L101
L102
L801
L802
L803
L804
L805
L806
L807
L808
L809
C802
C810
C833
C828
RP-52
1-637-253-12
A
B
C
D
1
2

RP-52/A —B SIDE—
1-637-253-12(1)
SVO-960
SVO-960P

B Side is the same as SOLDER Side

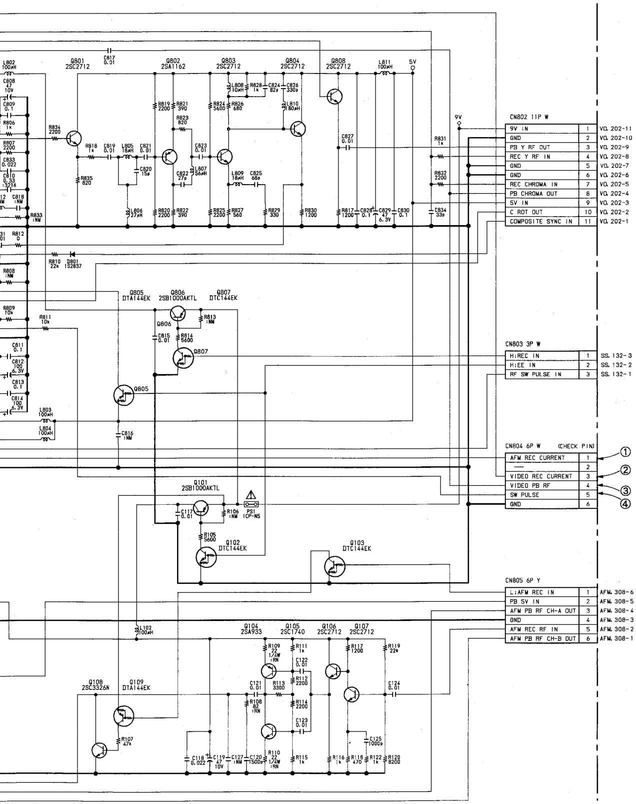
RP-52A; VIDEO/AFM HEAD AMP

NOTE :
The ⚠ -m
Replace


VIDEO HEAD
SP CH-1
SP CH-2
HI-FI AUDIO HEAD
HI-FI CH-1
HI-FI CH-2
CN801 13P
1 —
2 —
3 SP CH-1
4 SP CH-1
5 —
6 —
7 SP CH-2
8 SP CH-2
9 FE (GND)
10 FE
11 AFM CH-A
12 COMMON
13 AFM CH-B
IC801 HA118162NT
REC DET
T.PLAY DET
TO LOGIC
AMP
VCA
DET
REC IDLE CURRENT ADJ.
COMP
LOGIC
L:SP1
Q901 2SC3326N
Q902 2SC3326N
S1
ON OFF
Q801 2SC2712
Q802 2SA1162
Q803 2SC2712
Q804 2SC2712
Q808 2SC2712
L811 100μH
5V
9V
D801 1SS237
Q805 DTA144EK
Q806 2SB1000AKTL
Q807 DTC144EK
IC101 HA12115MP
AGC DET
REC AMP
PB:ON
Vcc (REC)
GND
CH1
CH2
REC:ON
Vcc (PB)
PRE Vcc
Q101 2SB1000AKTL
PS1 ICP-N5
Q102 DTC144EK
Q103 DTC144EK
Q104 2SA933
Q105 2SC1740
Q106 2SC2712
Q107 2SC2712
Q108 2SC3326N
Q109 DTA144EK
CN802 11P W
9V IN 1 VQ. 202-11
GND 2 VQ. 202-10
PB Y RF OUT 3 VQ. 202-9
REC Y RF IN 4 VQ. 202-8
GND 5 VQ. 202-7
GND 6 VQ. 202-6
REC CHROMA IN 7 VQ. 202-5
PB CHROMA OUT 8 VQ. 202-4
5V IN 9 VQ. 202-3
C ROT OUT 10 VQ. 202-2
COMPOSITE SYNC IN 11 VQ. 202-1
CN803 3P W
H:REC IN 1 SS. 132-3
H:EE IN 2 SS. 132-2
RF SW PULSE IN 3 SS. 132-1
CN804 6P W (CHECK PIN)
AFM REC CURRENT 1 ①
— 2
VIDEO REC CURRENT 3 ②
VIDEO PB RF 4 ③
SW PULSE 5 ④
GND 6
CN805 6P Y
L:AFM REC IN 1 AFM. 308-6
PB 5V IN 2 AFM. 308-5
AFM PB RF CH-A OUT 3 AFM. 308-4
GND 4 AFM. 308-3
AFM REC RF IN 5 AFM. 308-2
AFM PB RF CH-B OUT 6 AFM. 308-1

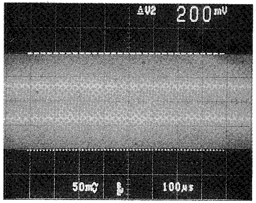
RP-52A

1-637-253-15
SVO-960P

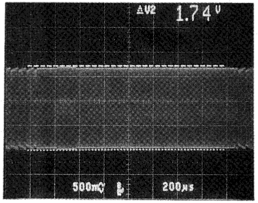

Q801 2SC2712
Q802 2SA1162
Q803 2SC2712
Q804 2SC2712
Q808 2SC2712
L811 100μH
5V
9V
CN802 11P W
9V IN
GND
PB Y RF OUT
REC Y RF IN
GND
GND
REC CHROMA IN
PB CHROMA OUT
SV IN
C ROT OUT
COMPOSITE SYNC IN
VQ 202-11
VQ 202-10
VQ 202-9
VQ 202-8
VQ 202-7
VQ 202-6
VQ 202-5
VQ 202-4
VQ 202-3
VQ 202-2
VQ 202-1
D801 1S2837
Q805 DTA144EK
Q806 2SB1000AKTL
Q807 DTC144EK
CN803 3P W
H:REC IN
H:EE IN
RF SW PULSE IN
SS 132-3
SS 132-2
SS 132-1
CN804 6P W (CHECK PIN)
AFM REC CURRENT
VIDEO REC CURRENT
VIDEO PB RF
SW PULSE
GND
①
②
③
④
Q101 2SB1000AKTL
PS1 ICP-N5
Q102 DTC144EK
Q103 DTC144EK
CN805 6P Y
L:AFM REC IN
PB SV IN
AFM PB RF CH-A OUT
GND
AFM REC RF IN
AFM PB RF CH-B OUT
AFM 308-6
AFM 308-5
AFM 308-4
AFM 308-3
AFM 308-2
AFM 308-1
L102 100μH
Q104 2SA933
Q105 2SC1740
Q106 2SC2712
Q107 2SC2712
Q108 2SC3326N
Q109 DTA144EK

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.

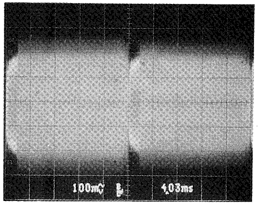
① CN804-1 REC mode



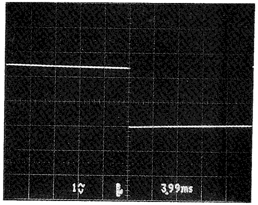
② CN804-3 REC mode



③ CN804-4 PB mode



④ CN804-5 PB mode

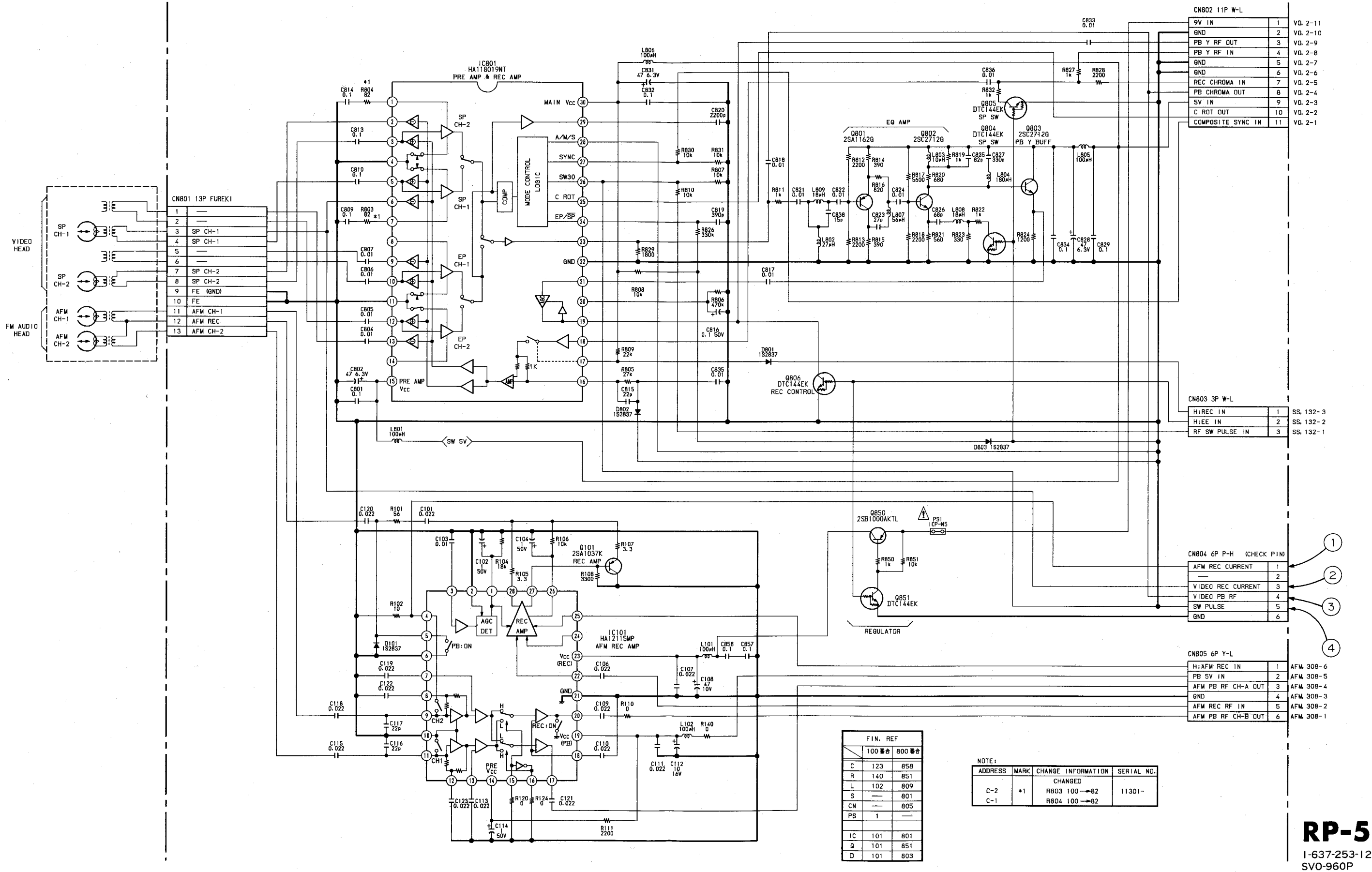


RP-52A

1-637-253-15
SVO-960P

RP-52A; VIDEO/AFM HEAD AMP

NOTE:
The ⚠-marked
Replace only wi


VIDEO HEAD
SP CH-1
SP CH-2
FM AUDIO HEAD
AFM CH-1
AFM CH-2
CN801 13P FUREKI
1 —
2 —
3 SP CH-1
4 SP CH-1
5 —
6 —
7 SP CH-2
8 SP CH-2
9 FE (GND)
10 FE
11 AFM CH-1
12 AFM REC
13 AFM CH-2
IC801
HA118019NT
PRE AMP & REC AMP
MAIN Vcc
A/M/S
SYNC
SW30
C ROT
EP/SP
GND
PRE AMP Vcc
MODE CONTROL LOGIC
COMP
SP CH-2
SP CH-1
EP CH-1
EP CH-2
EQ AMP
Q801 2SA1162G
Q802 2SC2712G
Q804 DTC144EK SP SW
Q803 2SC2712G PB Y BUFF
Q805 DTC144EK SP SW
Q806 DTC144EK REC CONTROL
D801 1S2837
D802 1S2837
D803 1S2837
L801 100µH
SW 5V
CN802 11P W-L
9V IN 1 VO. 2-11
GND 2 VO. 2-10
PB Y RF OUT 3 VO. 2-9
PB Y RF IN 4 VO. 2-8
GND 5 VO. 2-7
GND 6 VO. 2-6
REC CHROMA IN 7 VO. 2-5
PB CHROMA OUT 8 VO. 2-4
5V IN 9 VO. 2-3
C ROT OUT 10 VO. 2-2
COMPOSITE SYNC IN 11 VO. 2-1
CN803 3P W-L
H:REC IN 1 SS. 132-3
H:EE IN 2 SS. 132-2
RF SW PULSE IN 3 SS. 132-1
Q850 2SB1000AKTL
PS1 ICP-N5
Q851 DTC144EK
REGULATOR
CN804 6P P-H (CHECK PIN)
AFM REC CURRENT 1
— 2
VIDEO REC CURRENT 3
VIDEO PB RF 4
SW PULSE 5
GND 6
①
②
③
④
CN805 6P Y-L
H:AFM REC IN 1 AFM. 308-6
PB 5V IN 2 AFM. 308-5
AFM PB RF CH-A OUT 3 AFM. 308-4
GND 4 AFM. 308-3
AFM REC RF IN 5 AFM. 308-2
AFM PB RF CH-B OUT 6 AFM. 308-1
IC101
HA12115MP
AFM REC AMP
Q101 2SA1037K REC AMP
AGC DET
REC AMP
PB:ON
REC:ON
Vcc (REC)
Vcc (PB)
PRE Vcc
CH1
CH2
D101 1S2837
L101 100µH
L102 100µH

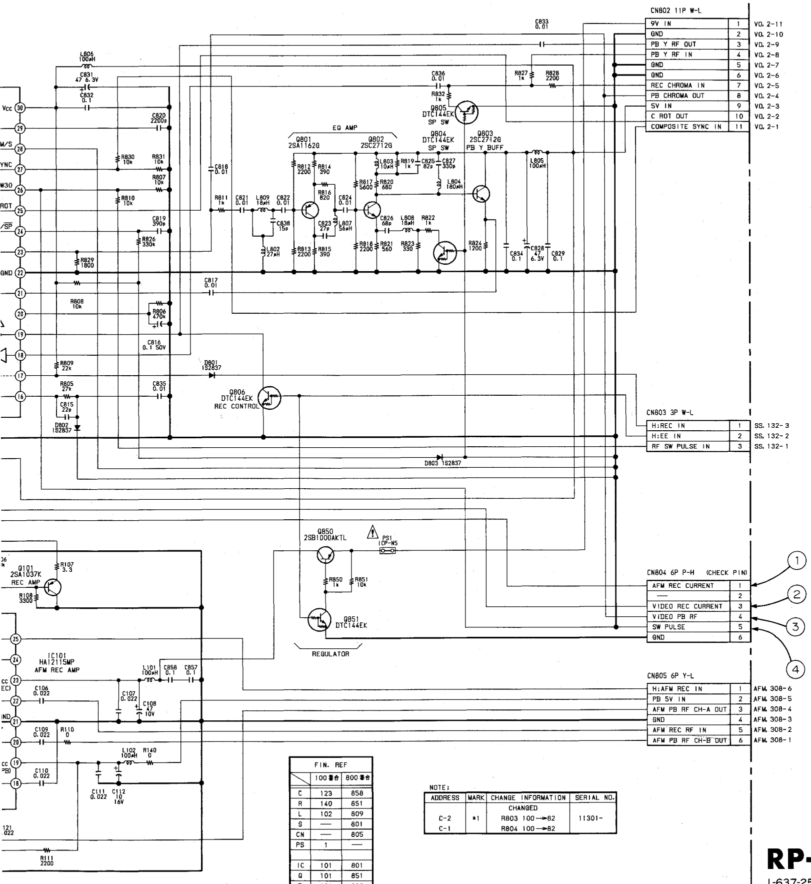
FIN. REF		
	100番台	800番台
C	123	858
R	140	851
L	102	809
S	—	801
CN	—	805
PS	1	—
IC	101	801
Q	101	851
D	101	803

NOTE:

ADDRESS	MARK	CHANGE INFORMATION	SERIAL NO.
C-2 C-1	*1	CHANGED R803 100→82 R804 100→82	11301-

RP-52A

1-637-253-12(1)
SV0-960P


CN802 11P W-L
9V IN 1 VO. 2-11
GND 2 VO. 2-10
PB Y RF OUT 3 VO. 2-9
PB Y RF IN 4 VO. 2-8
GND 5 VO. 2-7
GND 6 VO. 2-6
REC CHROMA IN 7 VO. 2-5
PB CHROMA OUT 8 VO. 2-4
SV IN 9 VO. 2-3
C ROT OUT 10 VO. 2-2
COMPOSITE SYNC IN 11 VO. 2-1
EQ AMP
Q801 2SA1162G
Q802 2SC2712G
Q803 2SC2712G PB Y BUFF
Q804 DTC144EK SP SW
Q805 DTC144EK SP SW
Q806 DTC144EK REC CONTROL
D801 1S2837
D802 1S2837
D803 1S2837
CN803 3P W-L
H:REC IN 1 SS. 132-3
H:EE IN 2 SS. 132-2
RF SW PULSE IN 3 SS. 132-1
Q850 2SB1000AKTL
PS1 ICP-N5
Q851 DTC144EK
REGULATOR
CN804 6P P-H (CHECK PIN)
AFM REC CURRENT 1
— 2
VIDEO REC CURRENT 3
VIDEO PB RF 4
SW PULSE 5
GND 6
①
②
③
④
CN805 6P Y-L
H:AFM REC IN 1 AFM. 308-6
PB 5V IN 2 AFM. 308-5
AFM PB RF CH-A OUT 3 AFM. 308-4
GND 4 AFM. 308-3
AFM REC RF IN 5 AFM. 308-2
AFM PB RF CH-B OUT 6 AFM. 308-1
Q101 2SA1037K REC AMP
IC101 HA12115MP AFM REC AMP
R107 3.3
R108 3300
R111 2200
L101 100μH
L102 100μH
C106 0.022
C107 0.022
C108 47 10V
C109 0.022
C110 0.022
C111 0.022
C112 10 16V
C857 0.1
C858 0.1
R110 0
R140 0
L806 100μH
C831 47 6.3V
C832 0.1
C833 0.01
C836 0.01
R832 1k
R827 1k
R828 2200
C820 2200p
R830 10k
R831 10k
R807 10k
R810 10k
C818 0.01
R811 1k
C821 0.01
L809 18μH
C822 0.01
C838 15p
L802 27μH
R812 2200
R814 390
R816 820
C824 0.01
C823 27p
L807 56μH
R813 2200
R815 390
R817 5600
R820 680
R818 2200
R821 560
L803 10μH
R819 1k
C825 82p
C827 330p
L804 180μH
C826 68p
L808 18μH
R822 1k
R823 330
R824 1200
L805 100μH
C834 0.1
C828 47 6.3V
C829 0.1
C819 390p
R826 330k
R829 1800
C817 0.01
R808 10k
R806 470k
C816 0.1 50V
R809 22k
R805 27k
C815 22p
C835 0.01
R850 1k
R851 10k
Vcc 30
29
M/S 28
YNC 27
W30 26
ROT 25
/SP 24
23
GND 22
21
20
19
18
17
16
25
24
22
21
20
19
18

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.

FIN. REF		
	100番台	800番台
C	123	858
R	140	851
L	102	809
S	—	801
CN	—	805
PS	1	—
IC	101	801
Q	101	851
D	101	803

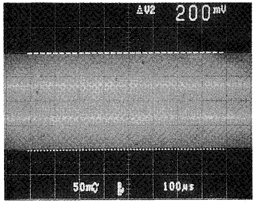
NOTE;

ADDRESS	MARK	CHANGE INFORMATION	SERIAL NO.
		CHANGED	
C-2	*1	R803 100→82	11301-
C-1		R804 100→82	

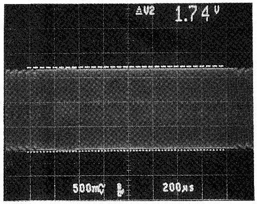
RP-52A

1-637-253-12(1)
SVO-960P

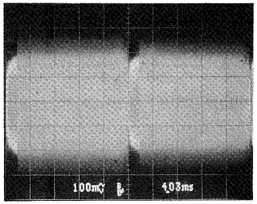
① CN804-1 REC mode



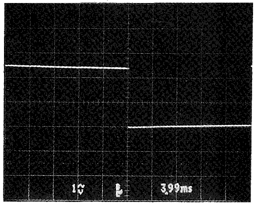
② CN804-3 REC mode



③ CN804-4 PB mode



④ CN804-5 PB mode



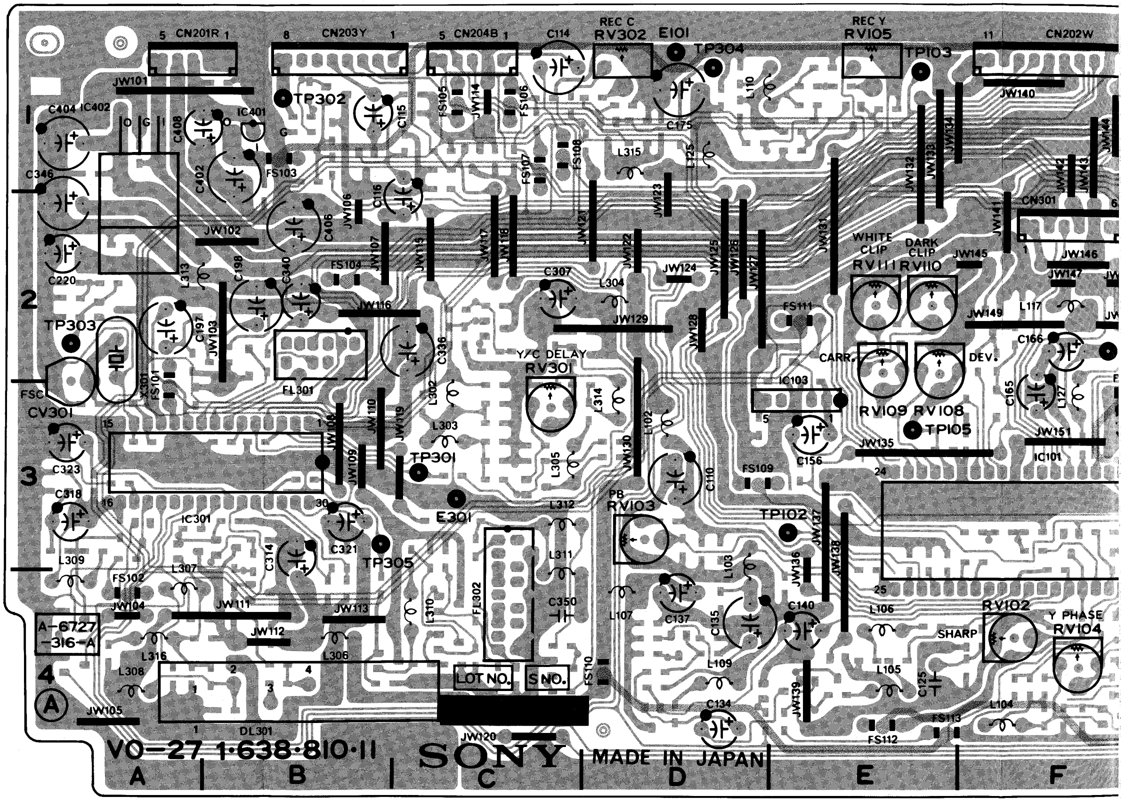
VO-27 ; Y/CHROMA VIDEO PROCESS

S/N UP TO 10100 (EK)

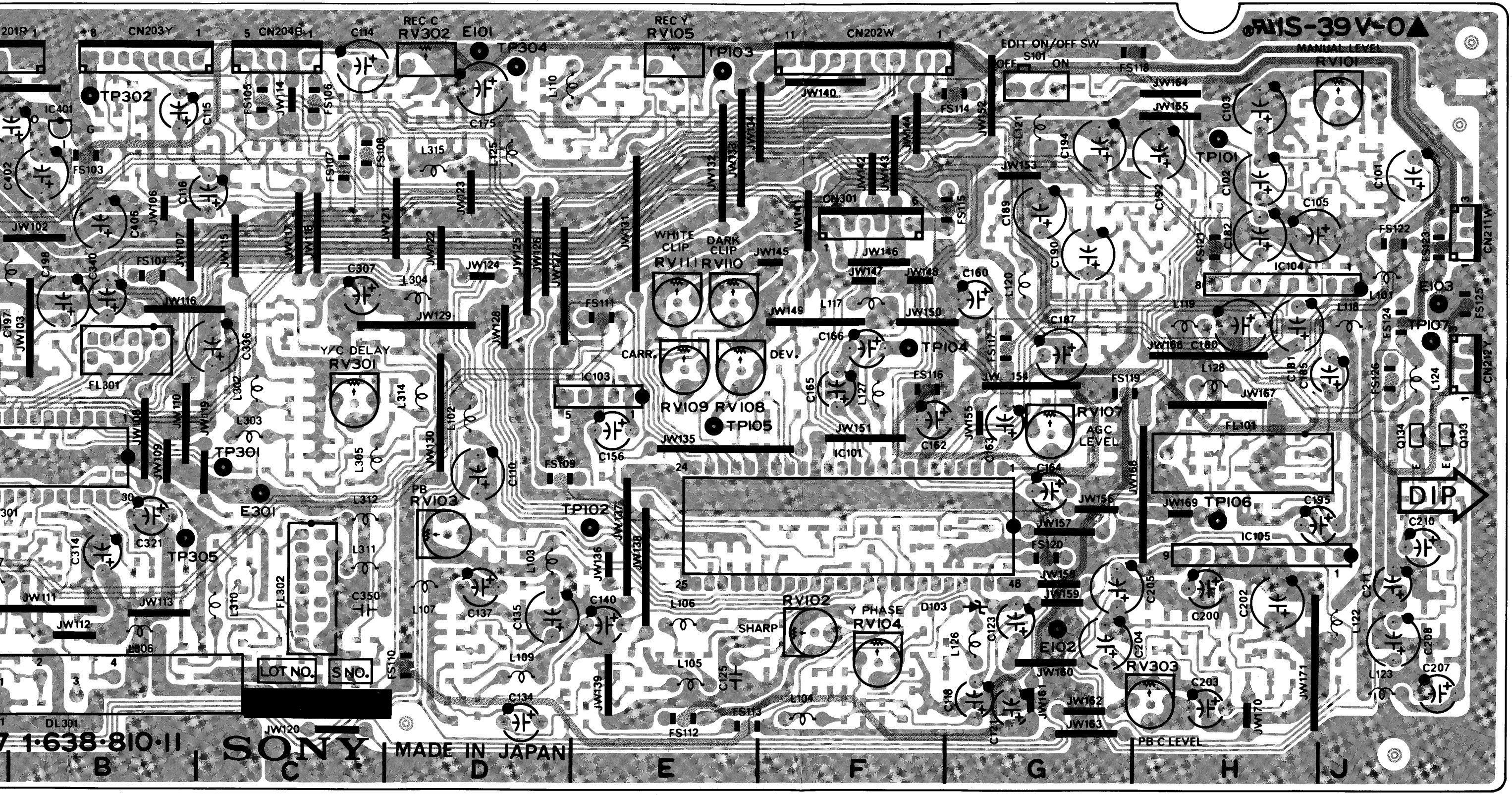
VO-27 (1-638-810-11, 12) A SIDE

CN201	A-1	Q131	⋆H-4
CN202	F-1	Q132	⋆J-4
CN203	B-1	Q133	J-3
CN204	C-1	Q134	J-3
CN211	J-2	Q135	⋆H-3
CN212	J-2	Q136	⋆D-1
CN301	J-2	Q137	⋆D-1
		Q138	⋆D-1
CV301	A-3	Q301	⋆C-2
		Q302	⋆C-3
DL301	B-4	Q303	⋆D-2
		Q304	⋆B-4
D101	⋆F-3	Q305	⋆B-4
D102	⋆H-2	Q306	⋆A-4
D103	⋆G-4	Q307	⋆A-4
D301	⋆A-3	Q309	⋆A-4
		Q310	⋆B-1
E101	E-1	Q311	⋆C-4
E102	G-4	Q312	⋆C-4
E103	J-2	Q313	⋆C-4
E301	C-3	Q314	⋆D-4
		Q315	⋆A-2
FL101	H-3	Q316	⋆D-1
FL301	B-3	Q317	⋆C-4
FL302	C-4	Q401	⋆C-1
IC101	F-3	RV101	J-1
IC103	E-2	RV102	E-4
IC104	H-2	RV103	D-3
IC105	H-3	RV104	F-4
IC301	A-3	RV105	D-1
IC401	B-1	RV106	D-1
IC402	A-1	RV107	G-3
		RV108	E-3
Q101	⋆J-1	RV109	E-3
Q102	⋆H-1	RV110	E-2
Q103	⋆H-2	RV111	E-2
Q104	⋆G-3	RV301	C-2
Q105	⋆E-4	RV302	D-1
Q106	⋆E-4	RV303	H-4
Q107	⋆B-1		
Q108	⋆F-4	S101	G-1
Q109	⋆F-4		
Q110	⋆E-4	TP101	H-1
Q111	⋆D-4	TP102	D-3
Q112	⋆D-4	TP103	E-1
Q113	⋆E-1	TP104	F-2
Q120	⋆E-2	TP105	E-3
Q121	⋆H-3	TP106	H-3
Q122	⋆J-3	TP107	J-2
Q123	⋆G-2	TP108	F-4
Q124	⋆G-2	TP301	C-3
Q125	⋆G-2	TP302	B-1
Q126	⋆H-2	TP303	A-2
Q127	⋆A-2	TP304	D-1
Q128	⋆H-4	TP305	B-3
Q129	⋆H-4		
Q130	⋆H-4	X301	A-3

⋆ mark ; B SIDE MOUNT.


5 CN201R 1
8 CN203Y 1
5 CN204B 1
C114
REC C
RV302
E101
TP304
REC Y
RV105
TP103
11 CN202W
JW101
TP302
C404
IC402
O G I
C408
IC401
C115
FS105
JW114
FS106
L110
C175
JW140
C346
C402
FS103
L315
FS107
FS108
L125
JW132
JW133
JW134
JW142
JW143
JW144
C116
JW106
C406
JW102
C340
C198
L313
FS104
JW107
JW115
JW117
JW118
JW121
JW122
JW123
C307
L304
JW124
JW125
JW126
JW127
JW131
WHITE CLIP
RV111
DARK CLIP
RV110
JW141
CN301
JW145
JW146
JW147
C220
2
TP303
C197
JW103
JW116
C336
JW129
JW128
FS111
L117
JW149
C166
X301
FS101
FL301
Y/C DELAY
RV301
CARR.
RV109
DEV.
RV108
IC103
C165
L127
FSC
CV301
L302
L303
L314
L102
TP105
JW151
IC101
C323
3
JW108
JW110
JW119
JW109
TP301
L305
JW130
C110
FS109
C156
JW135
C318
IC301
C321
E301
L312
PB
RV103
TP102
JW137
JW138
JW136
L309
C314
TP305
L311
L103
FS102
L307
C350
FL302
L310
L107
C137
C135
C140
L106
RV102
SHARP
Y PHASE
RV104
A-6727
-316-A
JW104
JW111
JW113
JW112
L316
L306
L308
LOT NO.
S NO.
FS110
L109
L105
C125
4
A
JW105
DL301
JW120
C134
JW139
FS112
FS113
L104
VO-27 1·638·810·11
SONY
MADE IN JAPAN
A
B
C
D
E
F

A Side is the same as COMPONENT Side


IS-39V-0
REC C
RV302
E101
TP304
REC Y
RV105
TP103
CN203Y
CN204B
CN202W
EDIT ON/OFF SW
S101
OFF
ON
MANUAL LEVEL
RV101
TP302
IC401
TP101
CN301
WHITE CLIP
RV111
DARK CLIP
RV110
IC104
CN211W
E103
TP107
CN212Y
Y/C DELAY
RV301
FL301
CARR.
DEV.
RV109
RV108
TP104
TP105
IC103
RV107
AGC LEVEL
FL101
TP301
E301
TP305
PB
RV103
TP102
IC101
IC105
TP106
DIP
FL302
RV102
SHARP
Y PHASE
RV104
D103
E102
RV303
PB C LEVEL
LOT NO.
S NO.
DL301
1-638-810-11
SONY
MADE IN JAPAN
B
C
D
E
F
G
H
J

VO-27 —A SIDE—
1-638-810-11(1)
SVO-960P

A Side is the same as COMPONENT Side

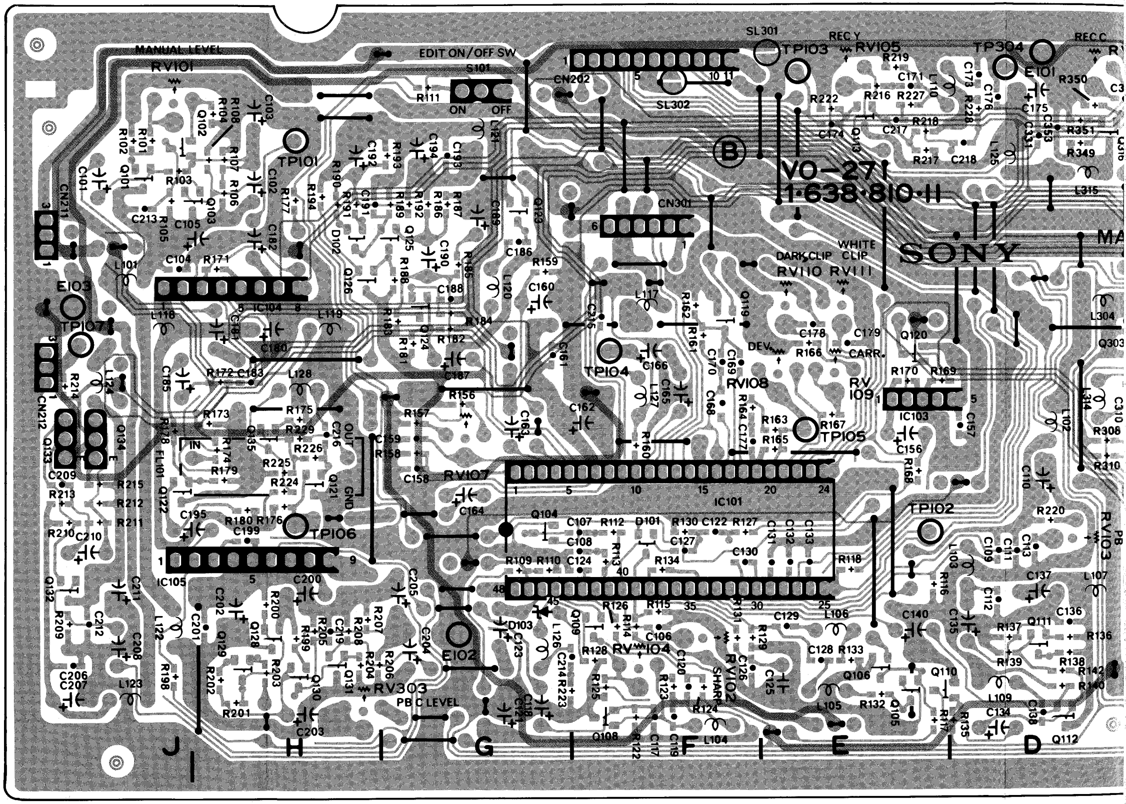
VO-27 ; Y/CHROMA VIDEO PROCESS

S/N UP TO 10100 (EK)

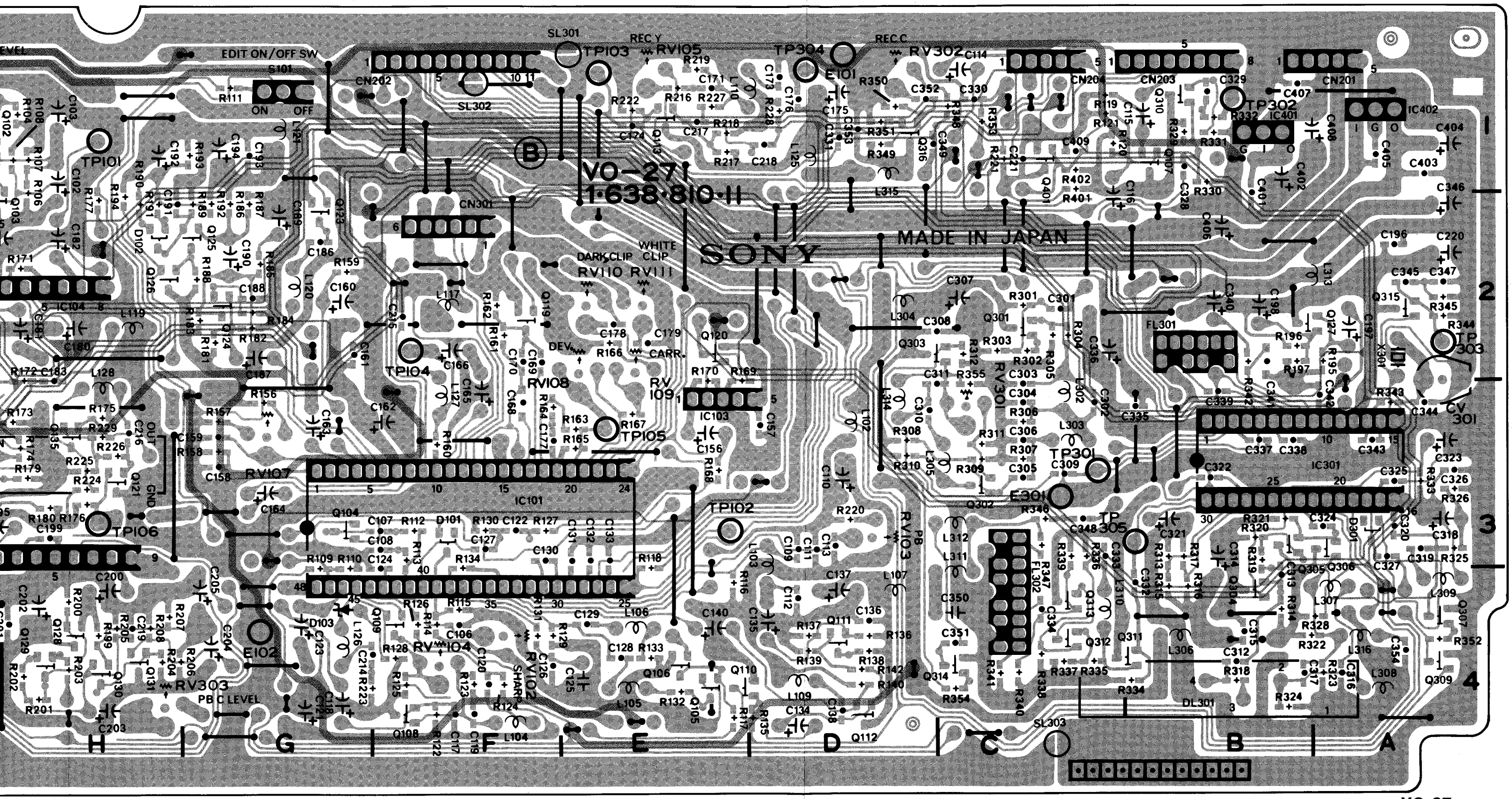
VO-27 (1-638-810-11, 12) B SIDE

CN201	A-1	Q131	⋆H-4
CN202	F-1	Q132	⋆J-4
CN203	B-1	Q133	J-3
CN204	C-1	Q134	J-3
CN211	J-2	Q135	⋆H-3
CN212	J-2	Q136	⋆D-1
CN301	J-2	Q137	⋆D-1
		Q138	⋆D-1
CV301	A-3	Q301	⋆C-2
		Q302	⋆C-3
DL301	B-4	Q303	⋆D-2
		Q304	⋆B-4
D101	⋆F-3	Q305	⋆B-4
D102	⋆H-2	Q306	⋆A-4
D103	⋆G-4	Q307	⋆A-4
D301	⋆A-3	Q309	⋆A-4
		Q310	⋆B-1
E101	E-1	Q311	⋆C-4
E102	G-4	Q312	⋆C-4
E103	J-2	Q313	⋆C-4
E301	C-3	Q314	⋆D-4
		Q315	⋆A-2
FL101	H-3	Q316	⋆D-1
FL301	B-3	Q317	⋆C-4
FL302	C-4	Q401	⋆C-1
IC101	F-3	RV101	J-1
IC103	E-2	RV102	E-4
IC104	H-2	RV103	D-3
IC105	H-3	RV104	F-4
IC301	A-3	RV105	D-1
IC401	B-1	RV106	D-1
IC402	A-1	RV107	G-3
		RV108	E-3
Q101	⋆J-1	RV109	E-3
Q102	⋆H-1	RV110	E-2
Q103	⋆H-2	RV111	E-2
Q104	⋆G-3	RV301	C-2
Q105	⋆E-4	RV302	D-1
Q106	⋆E-4	RV303	H-4
Q107	⋆B-1		
Q108	⋆F-4	S101	G-1
Q109	⋆F-4		
Q110	⋆E-4	TP101	H-1
Q111	⋆D-4	TP102	D-3
Q112	⋆D-4	TP103	E-1
Q113	⋆E-1	TP104	F-2
Q120	⋆E-2	TP105	E-3
Q121	⋆H-3	TP106	H-3
Q122	⋆J-3	TP107	J-2
Q123	⋆G-2	TP108	F-4
Q124	⋆G-2	TP301	C-3
Q125	⋆G-2	TP302	B-1
Q126	⋆H-2	TP303	A-2
Q127	⋆A-2	TP304	D-1
Q128	⋆H-4	TP305	B-3
Q129	⋆H-4		
Q130	⋆H-4	X301	A-3

⋆ mark ; B SIDE MOUNT.


MANUAL LEVEL
RV101
EDIT ON/OFF SW
S101
ON
OFF
SL301
REC Y
RV105
TP304
REC C
TP103
E101
CN202
SL302
B
VO-271
1-638-810-11
CN301
SONY
DARK CLIP
WHITE CLIP
RV110 RV111
DEV.
CARR.
RV108
RV
109
IC103
TP105
TP104
TP101
TP102
TP106
TP107
E103
E102
IC101
IC104
IC105
RV107
IN
OUT
GND
FL101
CN211
CN212
Q133
Q134
RV303
PB C LEVEL
SHARP
RV102
RV104
PB
RV103
J
H
G
F
E
D

B Side is the same as SOLDER Side


VO-271
1-638-810-11
SONY
MADE IN JAPAN
EDIT ON/OFF SW
S101
ON
OFF
SL301
SL302
SL303
TP101
TP102
TP103
TP104
TP105
TP106
TP301
TP302
TP303
TP304
TP305
REC Y
RV105
REC C
RV302
CN201
CN202
CN203
CN204
CN301
IC101
IC103
IC104
IC301
IC401
IC402
DARK CLIP
WHITE CLIP
RV110
RV111
DEV.
CARR.
RV108
RV109
RV107
RV104
SHARP
RV102
PB
RV103
RV301
RV303
PB C LEVEL
FL301
FL302
DL301
X301
CV301
E101
E102
E301
OUT
GND
A
B
C
D
E
F
G
H
1
2
3
4

B Side is the same as SOLDER Side

VO-27 —B SIDE—
1-638-810-11(1)
SVO-960P

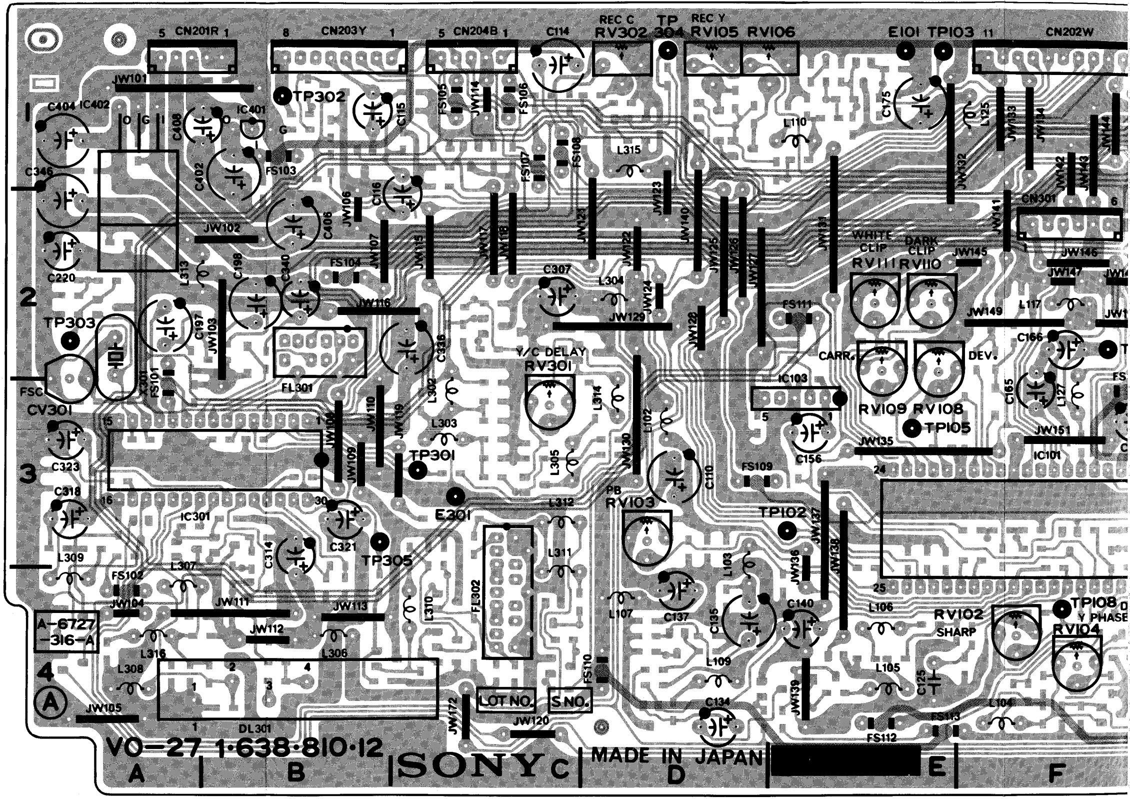
VO-27; Y/CHROMA VIDEO PROCESS

S/N 10101 AND HIGHER (EK)

VO-27 (1-638-810-11, 12) A SIDE

CN201	A-1
CN202	F-1
CN203	B-1
CN204	C-1
CN211	J-2
CN212	J-2
CN301	J-2
CV301	A-3
DL301	B-4
D101	⋆F-3
D102	⋆H-2
D103	⋆G-4
D301	⋆A-3
E101	E-1
E102	G-4
E103	J-2
E301	C-3
FL101	H-3
FL301	B-3
FL302	C-4
IC101	F-3
IC103	E-2
IC104	H-2
IC105	H-3
IC301	A-3
IC401	B-1
IC402	A-1
Q101	⋆J-1
Q102	⋆H-1
Q103	⋆H-2
Q104	⋆G-3
Q105	⋆E-4
Q106	⋆E-4
Q107	⋆B-1
Q108	⋆F-4
Q109	⋆F-4
Q110	⋆E-4
Q111	⋆D-4
Q112	⋆D-4
Q113	⋆E-1
Q120	⋆E-2
Q121	⋆H-3
Q122	⋆J-3
Q123	⋆G-2
Q124	⋆G-2
Q125	⋆G-2
Q126	⋆H-2
Q127	⋆A-2
Q128	⋆H-4
Q129	⋆H-4
Q130	⋆H-4
Q131	⋆H-4
Q132	⋆J-4
Q133	J-3
Q134	J-3
Q135	⋆H-3
Q136	⋆D-1
Q137	⋆D-1
Q138	⋆D-1
Q301	⋆C-2
Q302	⋆C-3
Q303	⋆D-2
Q304	⋆B-4
Q305	⋆B-4
Q306	⋆A-4
Q307	⋆A-4
Q309	⋆A-4
Q310	⋆B-1
Q311	⋆C-4
Q312	⋆C-4
Q313	⋆C-4
Q314	⋆D-4
Q315	⋆A-2
Q316	⋆D-1
Q317	⋆C-4
Q401	⋆C-1
RV101	J-1
RV102	E-4
RV103	D-3
RV104	F-4
RV105	D-1
RV106	D-1
RV107	G-3
RV108	E-3
RV109	E-3
RV110	E-2
RV111	E-2
RV301	C-2
RV302	D-1
RV303	H-4
S101	G-1
TP101	H-1
TP102	D-3
TP103	E-1
TP104	F-2
TP105	E-3
TP106	H-3
TP107	J-2
TP108	F-4
TP301	C-3
TP302	B-1
TP303	A-2
TP304	D-1
TP305	B-3
X301	A-3

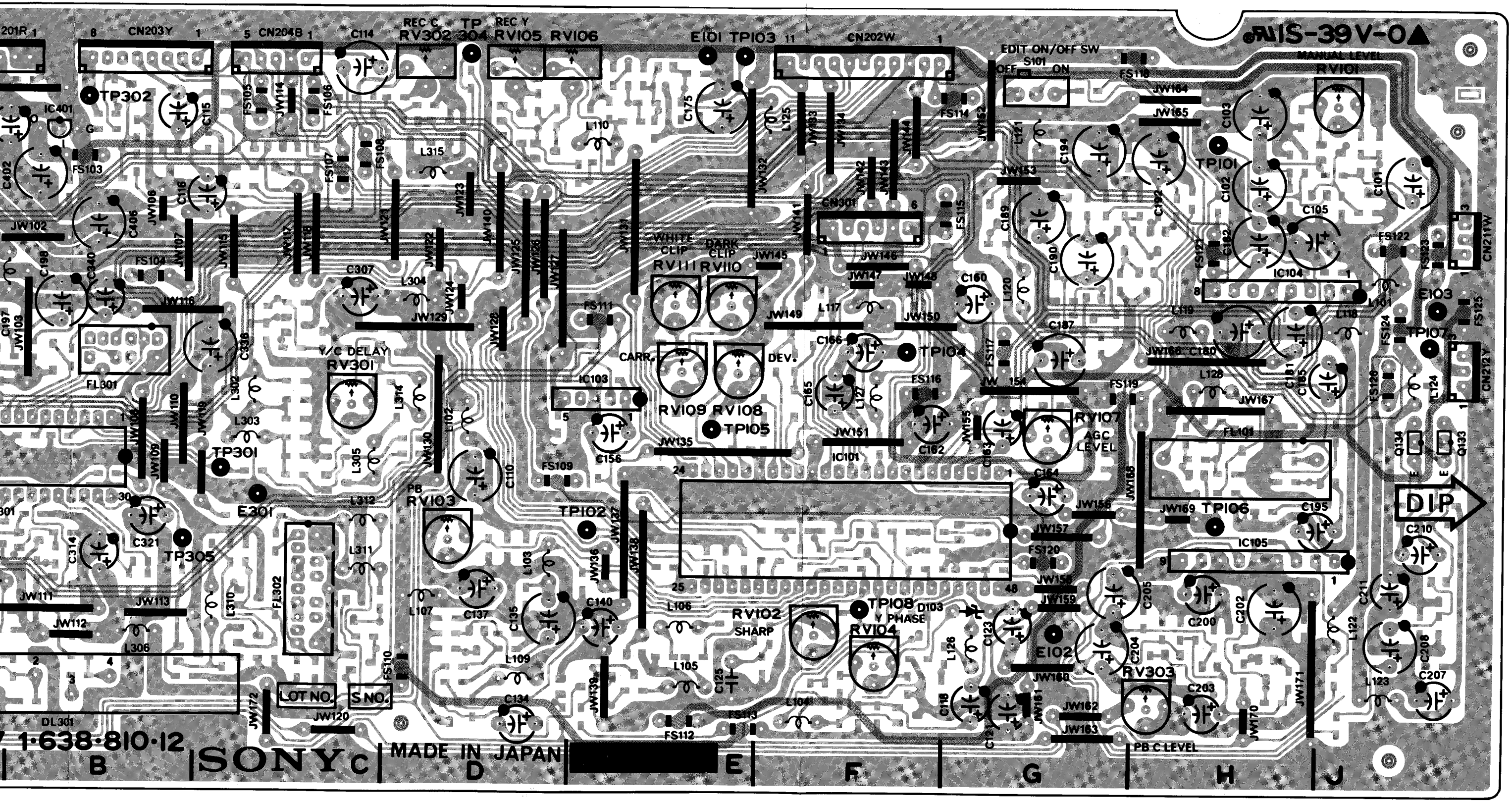
⋆ mark; B SIDE MOUNT.



CN201R
CN203Y
CN204B
C114
REC C
RV302
TP 304
REC Y
RV105
RV106
E101
TP103
CN202W
JW101
TP302
C404
IC402
IC401
C408
C115
FS105
JW114
FS106
C175
L125
L110
JW133
JW134
JW144
C346
C402
FS103
FS107
FS108
L315
JW132
JW142
JW143
JW106
C116
C406
JW123
JW140
JW131
JW141
CN301
JW102
JW107
JW115
JW117
JW118
JW121
JW122
JW125
JW126
JW127
WHITE CLIP
DARK CLIP
JW145
JW146
JW147
C220
L313
C198
C340
FS104
C307
L304
JW124
RV111
RV110
2
JW116
JW129
FS111
JW149
L117
TP303
C197
JW103
C336
Y/C DELAY
RV301
JW128
CARR.
DEV.
C166
X301
FS101
FL301
L302
IC103
FSC
CV301
L314
C165
L127
15
1
JW108
JW110
JW119
L303
L102
5
RV109
RV108
TP105
C323
3
JW109
TP301
JW130
C156
JW135
JW151
IC101
L305
C110
FS109
24
C318
16
30
PB
RV103
E301
L312
JW137
TP102
IC301
C321
TP305
L311
C314
L309
JW136
JW138
FS102
L307
L310
FL302
L103
25
JW104
JW111
JW113
L107
C137
C135
C140
L106
RV102
SHARP
TP108
Y PHASE
RV104
A-6727 -316-A
JW112
L316
L306
FS110
L109
L105
C125
L308
2
4
1
3
JW139
FS113
L104
4
LOT NO.
S NO.
C134
A
JW105
JW172
JW120
FS112
1
DL301
VO-27 1·638·810·12
SONY
MADE IN JAPAN
A
B
C
D
E
F

A Side is the same as COMPONENT Side

EK)


IS-39V-0
MANUAL LEVEL RV101
EDIT ON/OFF SW S101 OFF ON
CN203Y
CN204B
CN202W
CN301
CN211W
CN212Y
REC C RV302
TP 304
REC Y RV105 RV106
E101 TP103
TP302
IC401
TP101
IC104
E103
TP107
WHITE CLIP RV111
DARK CLIP RV110
CARR.
DEV.
RV109 RV108
TP105
TP104
RV107 AGC LEVEL
FL101
IC103
IC101
IC105
FL301
Y/C DELAY RV301
TP301
E301
TP305
PB RV103
TP102
TP106
DIP
RV102 SHARP
TP108 Y PHASE
RV104
E102
RV303
PB C LEVEL
FL302
DL301
LOT NO.
S NO.
1·638·810·12
SONY
MADE IN JAPAN
B
C
D
E
F
G
H
J

VO-27 —A SIDE—
1-638-810-12(1)
SVO-960P

A Side is the same as COMPONENT Side

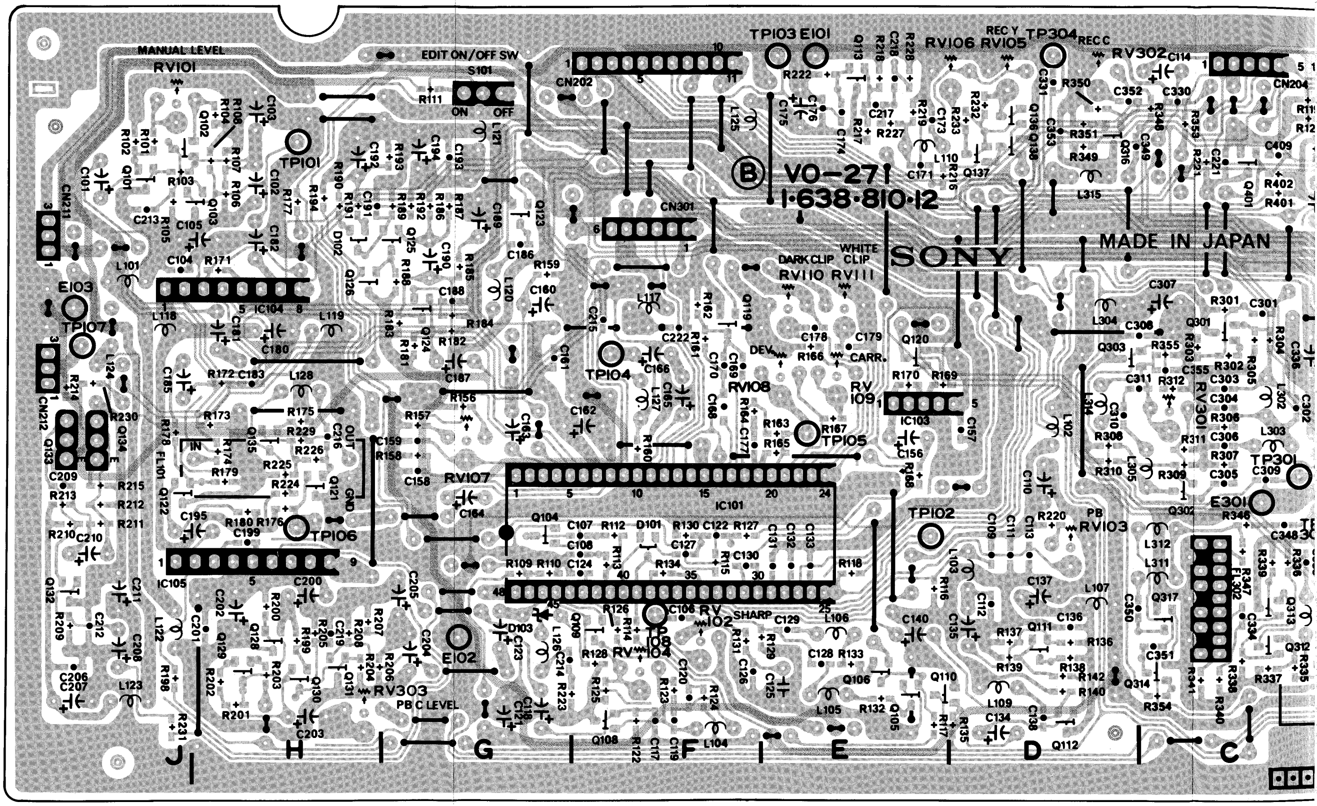
VO-27 ; Y/CHROMA VIDEO PROCESS

S/N 10101 AND HIGHER (EK)

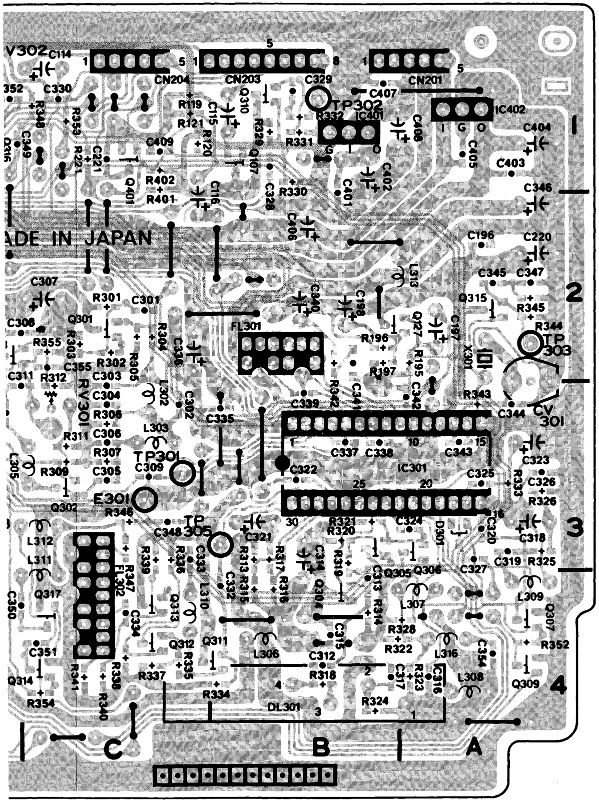
VO-27 (1-638-810-11, 12) B SIDE

CN201	A-1
CN202	F-1
CN203	B-1
CN204	C-1
CN211	J-2
CN212	J-2
CN301	J-2
CV301	A-3
DL301	B-4
D101	*F-3
D102	*H-2
D103	*G-4
D301	*A-3
E101	E-1
E102	G-4
E103	J-2
E301	C-3
FL101	H-3
FL301	B-3
FL302	C-4
IC101	F-3
IC103	E-2
IC104	H-2
IC105	H-3
IC301	A-3
IC401	B-1
IC402	A-1
Q101	*J-1
Q102	*H-1
Q103	*H-2
Q104	*G-3
Q105	*E-4
Q106	*E-4
Q107	*B-1
Q108	*F-4
Q109	*F-4
Q110	*E-4
Q111	*D-4
Q112	*D-4
Q113	*E-1
Q120	*E-2
Q121	*H-3
Q122	*J-3
Q123	*G-2
Q124	*G-2
Q125	*G-2
Q126	*H-2
Q127	*A-2
Q128	*H-4
Q129	*H-4
Q130	*H-4
Q131	*H-4
Q132	*J-4
Q133	J-3
Q134	J-3
Q135	*H-3
Q301	*C-2
Q302	*C-3
Q303	*D-2
Q304	*B-4
Q305	*B-4
Q306	*A-4
Q307	*A-4
Q309	*A-4
Q310	*B-1
Q311	*C-4
Q312	*C-4
Q313	*C-4
Q314	*D-4
Q315	*A-2
Q316	*D-1
Q317	*C-4
Q401	*C-1
RV101	J-1
RV102	E-4
RV103	D-3
RV104	F-4
RV105	D-1
RV107	G-3
RV108	E-3
RV109	E-3
RV110	E-2
RV111	E-2
RV301	C-2
RV302	D-1
RV303	H-4
S101	G-1
TP101	H-1
TP102	D-3
TP103	E-1
TP104	F-2
TP105	E-3
TP106	H-3
TP107	J-2
TP108	F-4
TP301	C-3
TP302	B-1
TP303	A-2
TP304	D-1
TP305	B-3
X301	A-3

* mark ; B SIDE MOUNT.

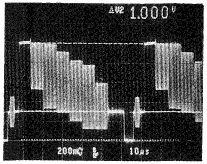

MANUAL LEVEL
RV101
EDIT ON/OFF SW
S101
ON
OFF
CN202
TP103
E101
RV106
RV105
REC Y
TP304
REC C
RV302
CN204
B
VO-27
1-638-810-12
CN301
DARK CLIP
WHITE CLIP
RV110
RV111
SONY
MADE IN JAPAN
CN211
E103
TP107
CN212
IC104
TP101
DEV.
CARR.
RV108
RV109
IC103
TP104
TP105
RV107
IC101
TP102
PB
RV103
E301
TP301
IC105
TP106
E102
RV303
PB C LEVEL
SHARP
RV102
TP108
RV104
FL101
IN
OUT
GND
FL302
J
H
G
F
E
D
C

B Side is the same as SOLDER Side

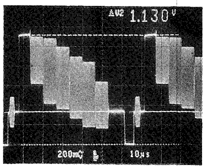

CN204
CN203
CN201
IC401
IC402
TP302
TP303
TP301
TP305
E301
IC301
FL301
FL302
RV301
CV301
X301
DL301
MADE IN JAPAN
1
2
3
4
A
B
C

VO-27 –B SIDE–
1-638-810-12(1)
SVO-960P

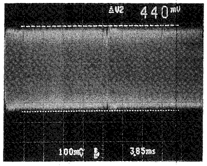
① CN11-1 EE mode



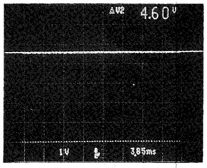
② TP101 EE mode



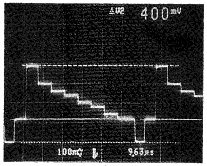
③ TP102 PB mode



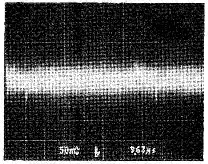
④ TP108 PB mode



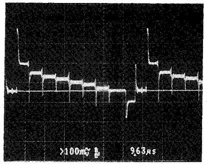
⑤ TP106 PB mode



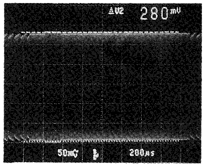
⑥ TP104 PB mode



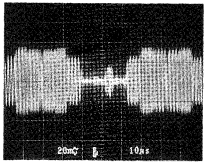
⑦ TP105 EE mode



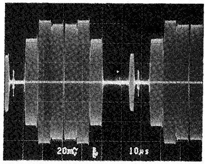
⑧ TP103 REC mode



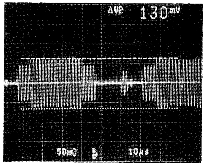
⑨ TP301 PB mode



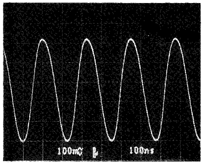
⑩ TP305 EE mode



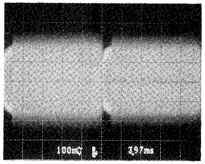
⑪ TP304 REC mode



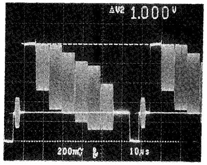
⑫ TP303 EE mode



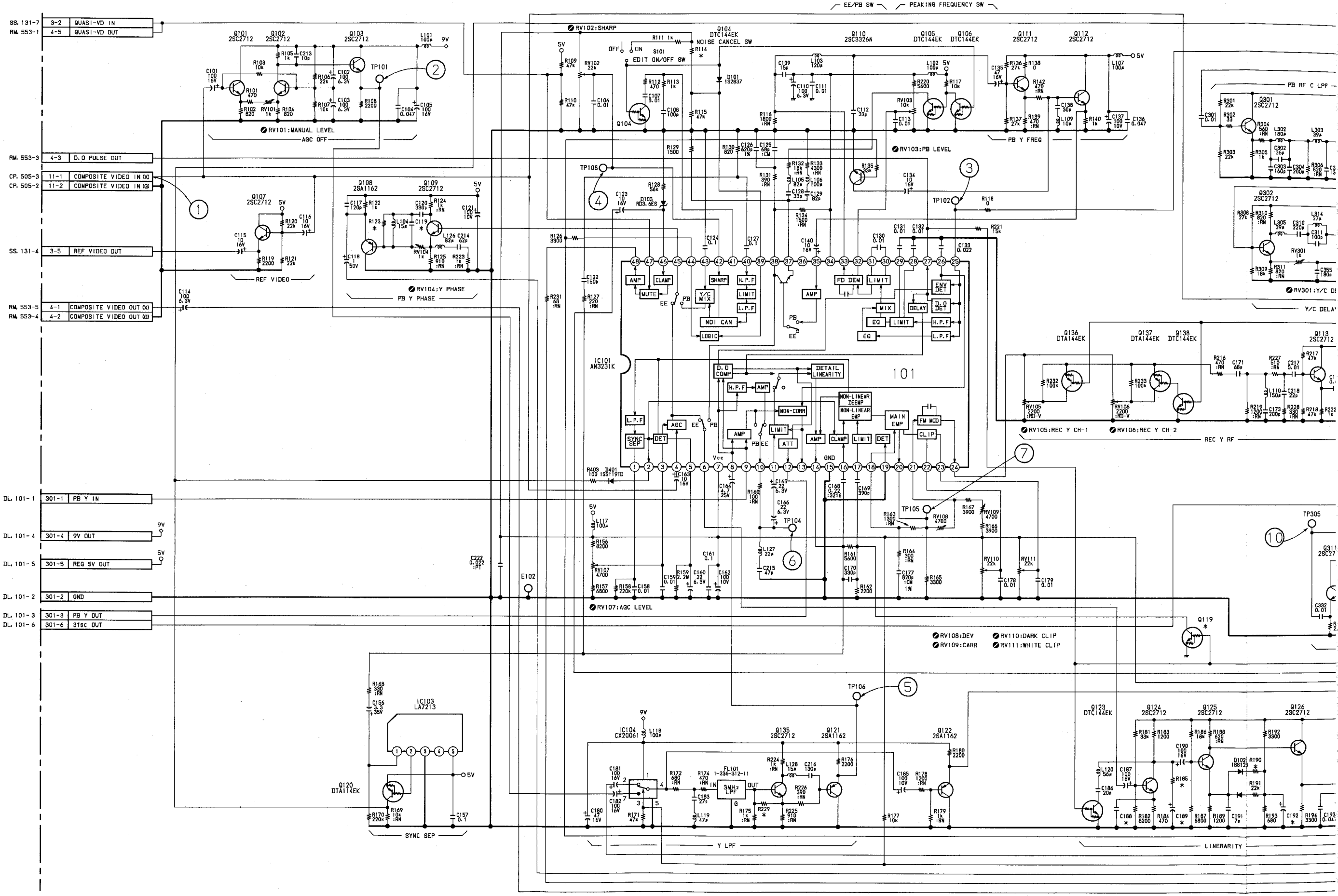
⑬ TP302 PB mode



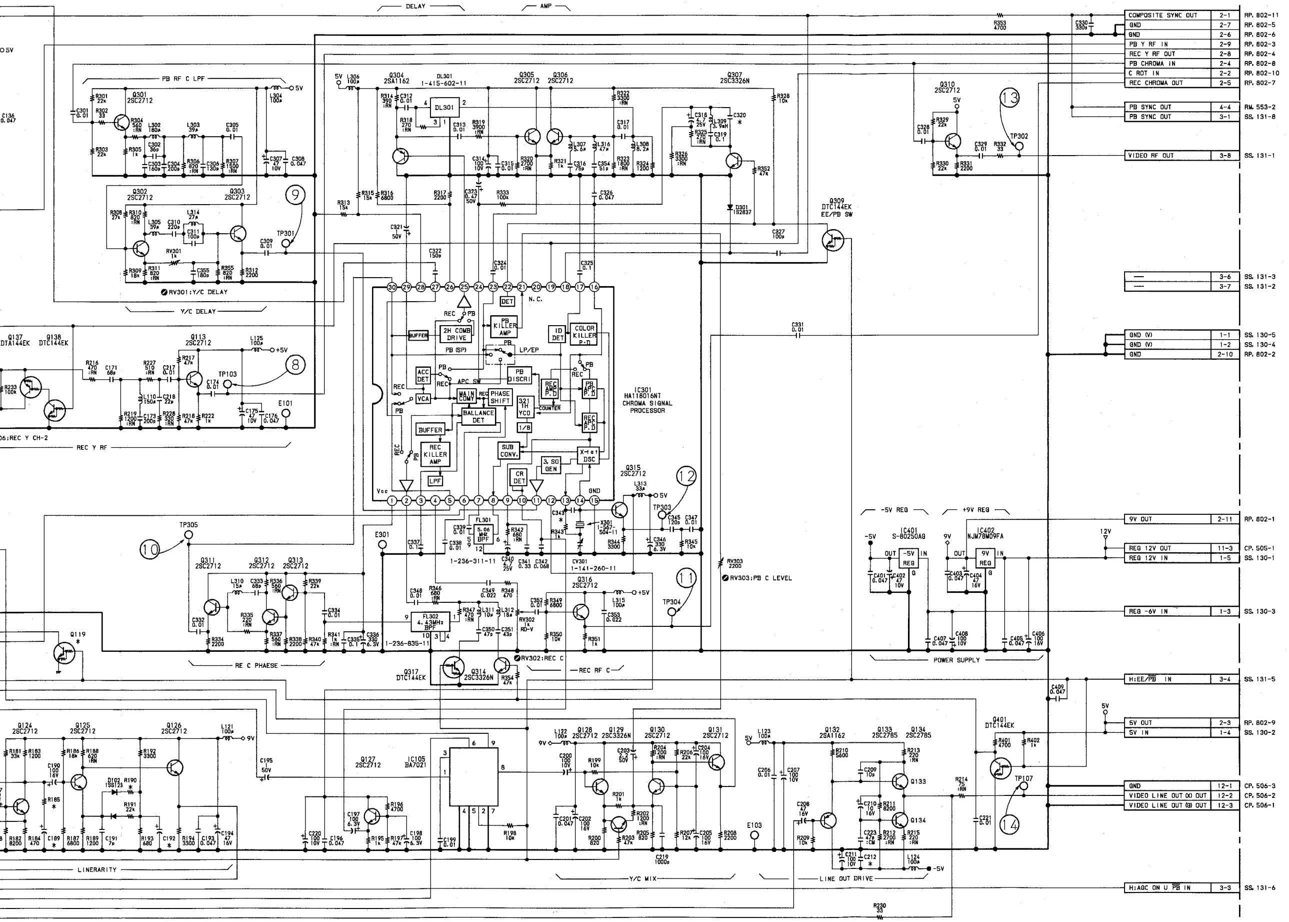
⑭ TP107 EE mode



VO-27 ; Y/CHROMA VIDEO PROCESS


SS. 131-7 3-2 QUASI-VD IN
RM. 553-1 4-5 QUASI-VD OUT
RM. 553-3 4-3 D.O PULSE OUT
CP. 505-3 11-1 COMPOSITE VIDEO IN (X)
CP. 505-2 11-2 COMPOSITE VIDEO IN (G)
SS. 131-4 3-5 REF VIDEO OUT
RM. 553-5 4-1 COMPOSITE VIDEO OUT (X)
RM. 553-4 4-2 COMPOSITE VIDEO OUT (G)
DL. 101-1 301-1 PB Y IN
DL. 101-4 301-4 9V OUT
DL. 101-5 301-5 REG 5V OUT
DL. 101-2 301-2 GND
DL. 101-3 301-3 PB Y OUT
DL. 101-6 301-6 3fsc OUT
Q101 2SC2712
Q102 2SC2712
Q103 2SC2712
TP101
RV101:MANUAL LEVEL
AGC OFF
Q107 2SC2712
REF VIDEO
Q108 2SA1162
Q109 2SC2712
RV104:Y PHASE
PB Y PHASE
RV102:SHARP
NOISE CANCEL SW
EDIT ON/OFF SW
S101
Q104 DTC144EK
D101 1S2837
Q110 2SC3326N
Q105 DTC144EK
Q106 DTC144EK
Q111 2SC2712
Q112 2SC2712
EE/PB SW
PEAKING FREQUENCY SW
RV103:PB LEVEL
PB Y FREQ
TP108
TP102
D103 RD3.6ES
IC101 AN3231K
AMP
CLAMP
MUTE
SHARP
Y/C MIX
H.P.F
LIMIT
L.P.F
NOI CAN
LOGIC
FD DEM
ENV DET
DELAY
D.O DET
MIX
EQ
D.O COMP
DETAIL LINEARITY
NON-CORR
NON-LINEAR DEEMP
NON-LINEAR EMP
MAIN EMP
FM MOD
CLIP
SYNC SEP
DET
AGC
ATT
101
Vcc
GND
PB
EE
R403
D401 1SS119TD
TP105
TP104
RV107:AGC LEVEL
E102
RV108:DEV
RV109:CARR
RV110:DARK CLIP
RV111:WHITE CLIP
IC103 LA7213
Q120 DTA114EK
SYNC SEP
IC104 CX20061
FL101 1-236-312-11
3MHz LPF
Q135 2SC2712
Q121 2SA1162
Q122 2SA1162
TP106
Y LPF
Q123 DTC144EK
Q124 2SC2712
Q125 2SC2712
Q126 2SC2712
D102 1SS123
LINEARITY
Q136 DTA144EK
Q137 DTA144EK
Q138 DTC144EK
RV105:REC Y CH-1
RV106:REC Y CH-2
REC Y RF
Q113 2SC2712
Q119
TP305
Q301 2SC2712
Q302 2SC2712
PB RF C LPF
RV301:Y/C DE
Y/C DELAY
9V
5V
①
②
③
④
⑤
⑥
⑦
⑩

A | B | C | D | E | F | G | H |


DELAY
AMP
PB RF C LPF
Y/C DELAY
RV301:Y/C DELAY
Q301 2SC2712
Q302 2SC2712
Q303 2SC2712
TP301
Q304 2SA1162
DL301 1-415-602-11
Q305 2SC2712
Q306 2SC2712
Q307 2SC3326N
D301 1SS237
IC301 HA118016NT CHROMA SIGNAL PROCESSOR
2H COMB DRIVE
PB KILLER AMP
ID DET
COLOR KILLER P.D
BUFFER
ACC DET
PB DISCRI
REC AMP P.D
PB APC P.D
REC APC P.D
VCA
MAIN CONV
PHASE SHIFT
BALLANCE DET
321 fH VCO
COUNTER
1/8
REC KILLER AMP
SUB CONV.
3.58 GEN
X-tal OSC
CR DET
LPF
LP/EP
N.C.
Vcc
GND
FL301 5.06 MHz BPF 1-236-311-11
X301 1-567-504-11
CV301 1-141-260-11
FL302 4.43MHz BPF 1-236-835-11
Q309 DTC144EK EE/PB SW
Q310 2SC2712
TP302
Q315 2SC2712
TP303
RV303:PB C LEVEL
TP304
Q316 2SC2712
RV302:REC C
REC RF C
Q317 DTC144EK
Q314 2SC3326N
Q311 2SC2712
Q312 2SC2712
Q313 2SC2712
RE C PHASE
TP305
E301
Q137 DTA144EK
Q138 DTC144EK
Q113 2SC2712
TP103
E101
REC Y CH-2
REC Y RF
Q119
Q124 2SC2712
Q125 2SC2712
Q126 2SC2712
LINEARITY
Q127 2SC2712
IC105 BA7021
Q128 2SC2712
Q129 2SC3326N
Q130 2SC2712
Q131 2SC2712
Y/C MIX
E103
Q132 2SA1162
Q133 2SC2785
Q134 2SC2785
LINE OUT DRIVE
Q401 DTC144EK
TP107
-5V REG
IC401 S-80250AG
+9V REG
IC402 NJM78M09FA
POWER SUPPLY
⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭
COMPOSITE SYNC OUT 2-1 RP. 802-11
GND 2-7 RP. 802-5
GND 2-6 RP. 802-6
PB Y RF IN 2-9 RP. 802-3
REC Y RF OUT 2-8 RP. 802-4
PB CHROMA IN 2-4 RP. 802-8
C ROT IN 2-2 RP. 802-10
REC CHROMA OUT 2-5 RP. 802-7
PB SYNC OUT 4-4 RM. 553-2
PB SYNC OUT 3-1 SS. 131-8
VIDEO RF OUT 3-8 SS. 131-1
3-6 SS. 131-3
3-7 SS. 131-2
GND (V) 1-1 SS. 130-5
GND (V) 1-2 SS. 130-4
GND 2-10 RP. 802-2
9V OUT 2-11 RP. 802-1
12V
REG 12V OUT 11-3 CP. 505-1
REG 12V IN 1-5 SS. 130-1
REG -6V IN 1-3 SS. 130-3
H:EE/PB IN 3-4 SS. 131-5
5V
5V OUT 2-3 RP. 802-9
5V IN 1-4 SS. 130-2
GND 12-1 CP. 506-3
VIDEO LINE OUT (X) OUT 12-2 CP. 506-2
VIDEO LINE OUT (G) OUT 12-3 CP. 506-1
H:AGC ON U PB IN 3-3 SS. 131-6

NOTE;

* NO MOUNT	
R114	C119
R123	C188
R185	C189
R190	C192
R229	C212
	C320
Q119	C343

REF	FIN.REF		
	100	300	400
C	223	355	409
R	233	355	403
CV	—	301	—
RV	111	303	—
L	128	316	—
DL	—	301	—
FL	101	302	—
S	101	—	—
E	103	301	
TP	108	305	
X	—	301	—
D	103	301	401
Q	138	317	401
IC	105	301	402

NOTE:

ADDRESS	MARK	CHANGE INFORMATION	SERIAL NO.
		CHANGED	
G-3	*1	RV105 1k → 2.2k	10101-
		ADDED	
G-3	*2	R232 100k	
H-3		R233 100k	
G-3		Q136 DTA144EK	
H-3		Q137 DTA144EK	
H-3		Q138 DTC144EK	
H-3		RV106 2.2k	
K-4		C344 7p	
		DELETED	
K-4	*3	C344 7p	11301-

*FS101
*FS102
*FS103
*FS104
*FS105
*FS106
*FS107
*FS108
*FS109
*FS110
*FS111
*FS112
*FS113
*FS114
*FS115
*FS116
*FS117
*FS118
*FS119
*FS120
*FS121
*FS122
*FS123
*FS124
*FS125
*FS126

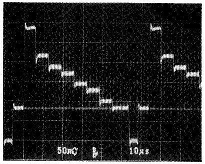
*CN201 R 5P
*CN202 W 11P
*CN203 Y 8P
*CN204 B 5P
*CN211 W 3P
*CN212 Y 3P
*CN301 PIN 6P

VO-27

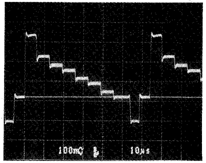
1-638-810-11, 12 (2)
SVO-960P

DL-44 ; CCD 1H DELAY

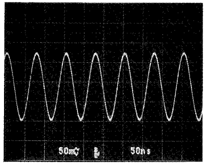
① CN101-3 PB mode

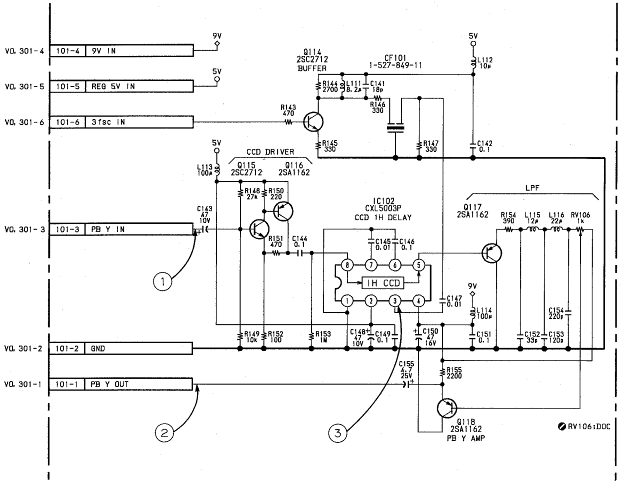


② CN101-1 PB mode

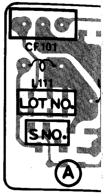


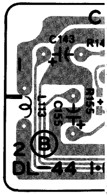
③ IC102-3 EE mode



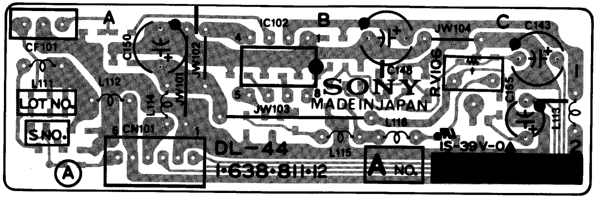

VO. 301-4
101-4
9V IN
9V
VO. 301-5
101-5
REG 5V IN
5V
VO. 301-6
101-6
3fsc IN
VO. 301-3
101-3
PB Y IN
VO. 301-2
101-2
GND
VO. 301-1
101-1
PB Y OUT
Q114
2SC2712
BUFFER
CF101
1-527-849-11
5V
L112
10µ
R144
2700
L111
8.2µ
C141
18p
R146
330
R143
470
R145
330
R147
330
C142
0.1
5V
L113
100µ
CCD DRIVER
Q115
2SC2712
Q116
2SA1162
R148
27k
R150
220
C143
47
10V
R151
470
C144
0.1
IC102
CXL5003P
CCD 1H DELAY
C145
0.01
C146
0.1
1H CCD
C147
0.01
9V
L114
100µ
R149
10k
R152
100
R153
1M
C148
47
10V
C149
0.1
C150
47
16V
C151
0.1
LPF
Q117
2SA1162
R154
390
L115
12µ
L116
22µ
RV106
1k
C154
220p
C152
33p
C153
120p
C155
4.7
25V
R155
2200
Q118
2SA1162
PB Y AMP
RV106:DOC
1
2
3

DL-44
1-638-811-11, 12(1)
SVO-960P


CF101
L111
LOT NO.
S NO.
A

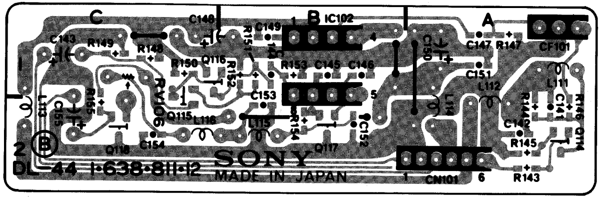

C
C143
R14
L113
R155
C155
2
B
DL-44

S/N 10101 AND HIGHER (EK)


A
B
C
CF101
IC102
JW104
C143
C150
JW102
C148
RV106
L111
L112
JW101
L114
C155
LOT NO.
S NO.
JW103
SONY
MADE IN JAPAN
L116
L113
6 CN101 1
DL-44
L115
IS-39V-0
1-638-811-12
A NO.
Ⓐ

DL-44 —A SIDE—
1-638-811-12(1)
SV0-960P

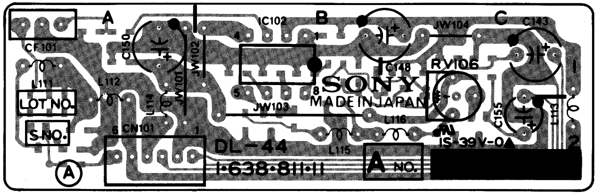
A Side is the same as COMPONENT Side


C
C148
B IC102
A
C143
R149
R148
C149
R151
C147 R147
CF101
R150 Q116
R152
R153 C145 C146
C150
C151
L112
L111
L113
C155
R155
RV106
C153
L114
R144
C141
R146
Q115 L116
L115
R154
C152
C142
Q114
2 Ⓑ
Q118
C154
Q117
R145
SONY
MADE IN JAPAN
DL-44 1-638-811-12
1 CN101 6
R143

DL-44 —B SIDE—
1-638-811-12(1)
SV0-960P

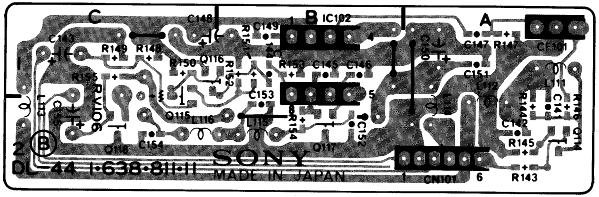
B Side is the same as SOLDER Side

S/N UP TO 10100 (EK)


A
B
C
CF101
IC102
JW104
C143
C150
JW102
C148
RV106
L111
L112
JW101
L114
C155
L113
LOT NO.
S NO.
JW103
SONY
MADE IN JAPAN
L116
6 CN101 1
DL-44
L115
IS-39V-0
1-638-811-11
A NO.
Ⓐ

DL-44 —A SIDE—
1-638-811-11(1)
SV0-960P

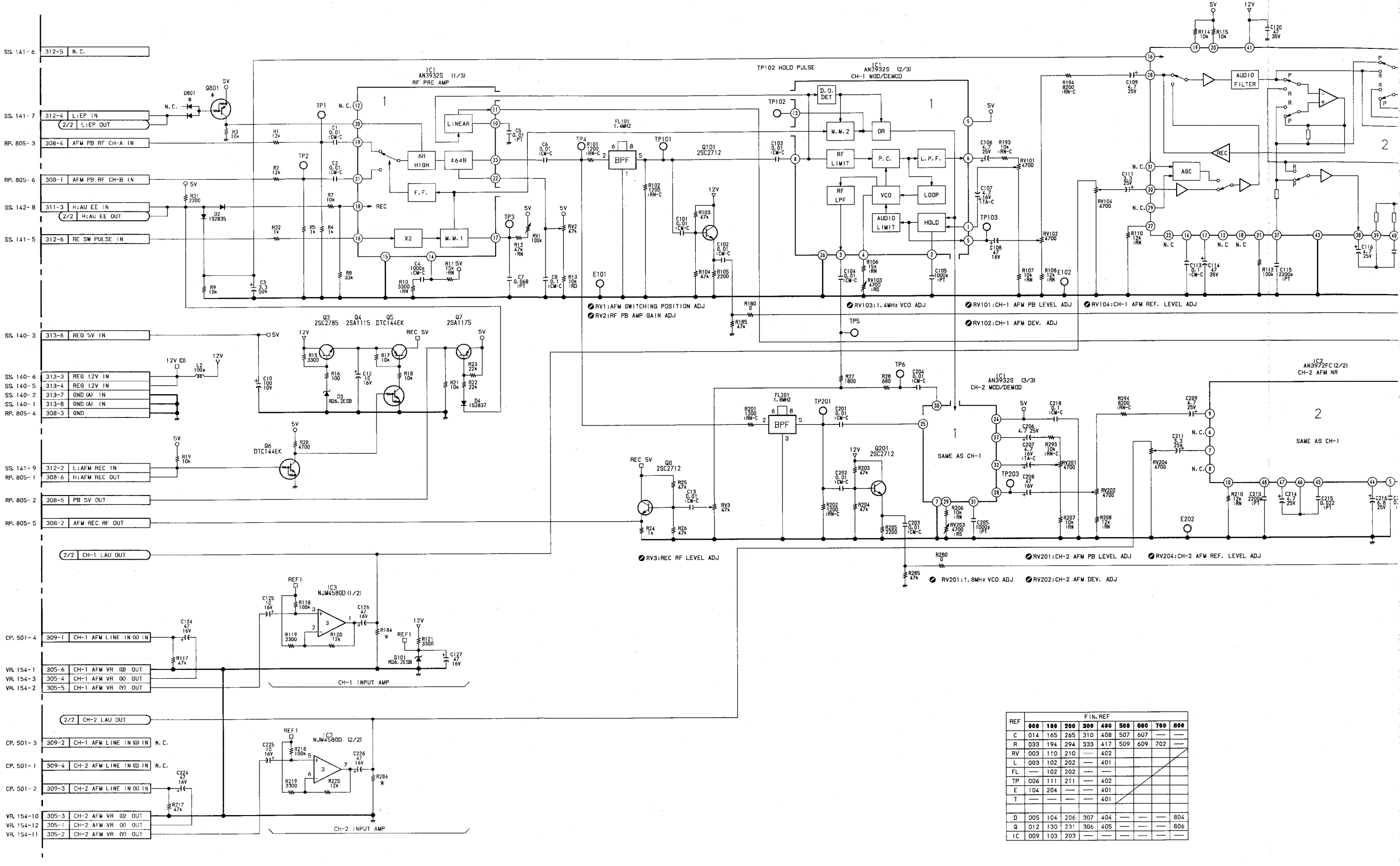
A Side is the same as COMPONENT Side


C
C148
B IC102
A
C143
R149
R148
C149
R151
C147 R147
CF101
R150 Q116
R152
R153 C145 C146
C150
C151
L112
L111
L113
C155
R155
RV106
C153
L114
R144
C141
R146
Q115 L116
L115
R154
C152
C142
Q114
2 Ⓑ
Q118
C154
Q117
R145
SONY
MADE IN JAPAN
DL-44 1-638-811-11
1 CN101 6
R143

DL-44 —B SIDE—
1-638-811-11(1)
SV0-960P

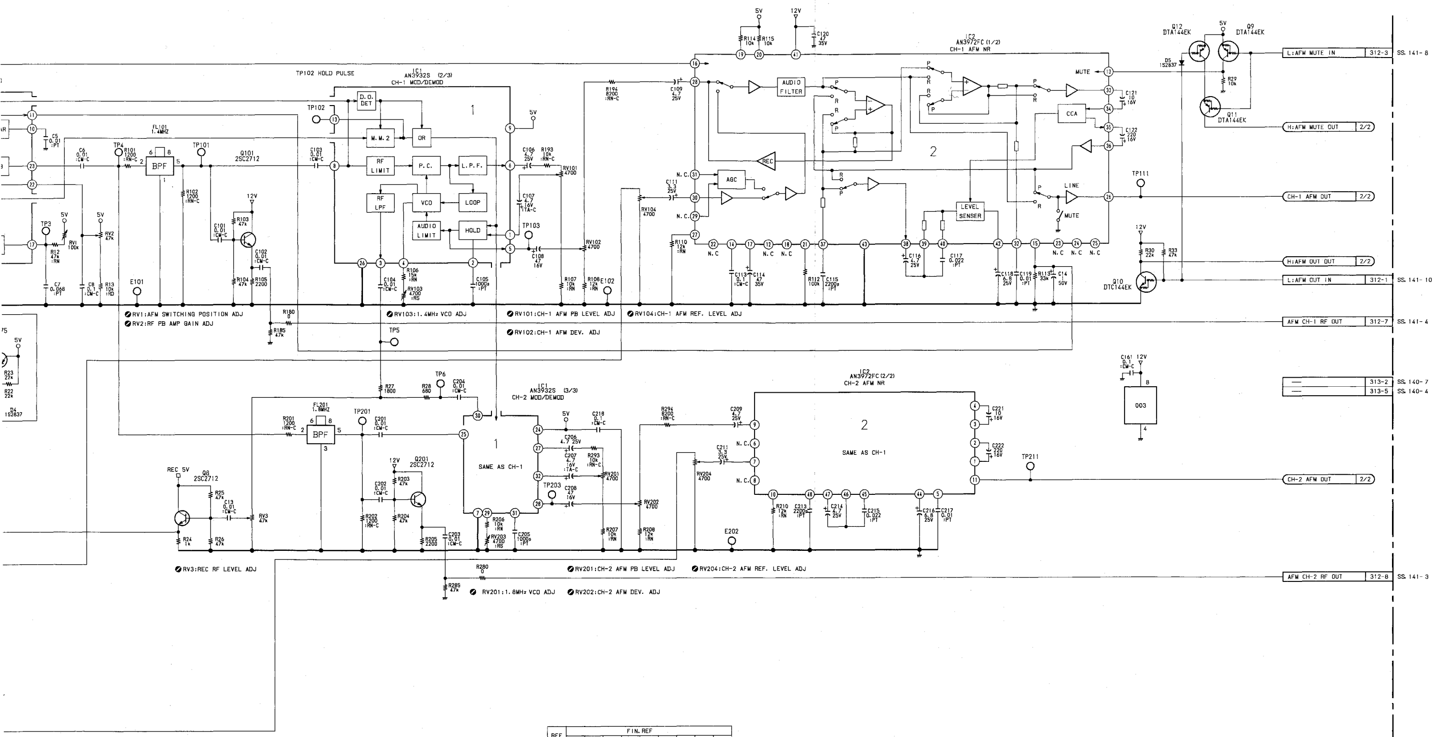
B Side is the same as SOLDER Side

AFM-10 (1/2); AFM PROCESS (Serial No. 14401 and higher)


SS 141-6 312-5 N.C.
SS 141-7 312-4 L:EP IN
2/2 L:EP OUT
RP 805-3 308-4 AFM PB RF CH-A IN
RP 805-6 308-1 AFM PB RF CH-B IN
SS 142-8 311-3 H:AU EE IN
2/2 H:AU EE OUT
SS 141-5 312-6 RE SW PULSE IN
SS 140-3 313-6 REG 5V IN
SS 140-6 313-3 REG 12V IN
SS 140-5 313-4 REG 12V IN
SS 140-2 313-7 GND (A) IN
SS 140-1 313-8 GND (A) IN
RP 805-4 308-3 GND
SS 141-9 312-2 L:AFM REC IN
RP 805-1 308-6 H:AFM REC OUT
RP 805-2 308-5 PB 5V OUT
RP 805-5 308-2 AFM REC RF OUT
2/2 CH-1 LAU OUT
CP 501-4 309-1 CH-1 AFM LINE IN (X) IN
VR 154-1 305-6 CH-1 AFM VR (G) OUT
VR 154-3 305-4 CH-1 AFM VR (X) OUT
VR 154-2 305-5 CH-1 AFM VR (Y) OUT
2/2 CH-2 LAU OUT
CP 501-3 309-2 CH-1 AFM LINE IN (G) IN N.C.
CP 501-1 309-4 CH-2 AFM LINE IN (G) IN N.C.
CP 501-2 309-3 CH-2 AFM LINE IN (X) IN
VR 154-10 305-3 CH-2 AFM VR (G) OUT
VR 154-12 305-1 CH-2 AFM VR (X) OUT
VR 154-11 305-2 CH-2 AFM VR (Y) OUT
IC1 AN3932S (1/3) RF PRE AMP
LINEAR
6H HIGH
±6dB
F.F.
X2
M.M.1
REC
FL101 1.4MHz
BPF
Q101 2SC2712
TP102 HOLD PULSE
IC1 AN3932S (2/3) CH-1 MOD/DEMOD
D.O. DET
M.M.2
OR
RF LIMIT
P.C.
L.P.F.
RF LPF
VCO
LOOP
AUDIO LIMIT
HOLD
AUDIO FILTER
REC
AGC
Q3 2SC2785
Q4 2SA1115
Q5 DTC144EK
Q7 2SA1175
Q6 DTC144EK
Q801
D801
Q8 2SC2712
FL201 1.8MHz
Q201 2SC2712
IC1 AN3932S (3/3) CH-2 MOD/DEMOD
SAME AS CH-1
IC2 AN3972FC (2/2) CH-2 AFM NR
SAME AS CH-1
IC3 NJM4580D (1/2)
CH-1 INPUT AMP
IC3 NJM4580D (2/2)
CH-2 INPUT AMP
TP1
TP2
TP3
TP4
TP5
TP6
TP101
TP102
TP103
TP201
TP203
E101
E102
E202

RV1:AFM SWITCHING POSITION ADJ
RV2:RF PB AMP GAIN ADJ
RV103:1.4MHz VCO ADJ
RV101:CH-1 AFM PB LEVEL ADJ
RV104:CH-1 AFM REF. LEVEL ADJ
RV102:CH-1 AFM DEV. ADJ
RV3:REC RF LEVEL ADJ
RV201:CH-2 AFM PB LEVEL ADJ
RV204:CH-2 AFM REF. LEVEL ADJ
RV201:1.8MHz VCO ADJ
RV202:CH-2 AFM DEV. ADJ

REF	FIN.REF								
	000	**100**	**200**	**300**	**400**	**500**	**600**	**700**	**800**
C	014	165	265	310	408	507	607	—	—
R	033	194	294	333	417	509	609	702	—
RV	003	110	210	—	402				
L	003	102	202	—	401				
FL	—	102	202	—	—				
TP	006	111	211	—	402				
E	104	204	—	—	401				
T	—	—	—	—	401				
D	005	104	206	307	404	—	—	—	804
Q	012	130	231	306	405	—	—	—	806
IC	009	103	203	—	—	—	—	—	—

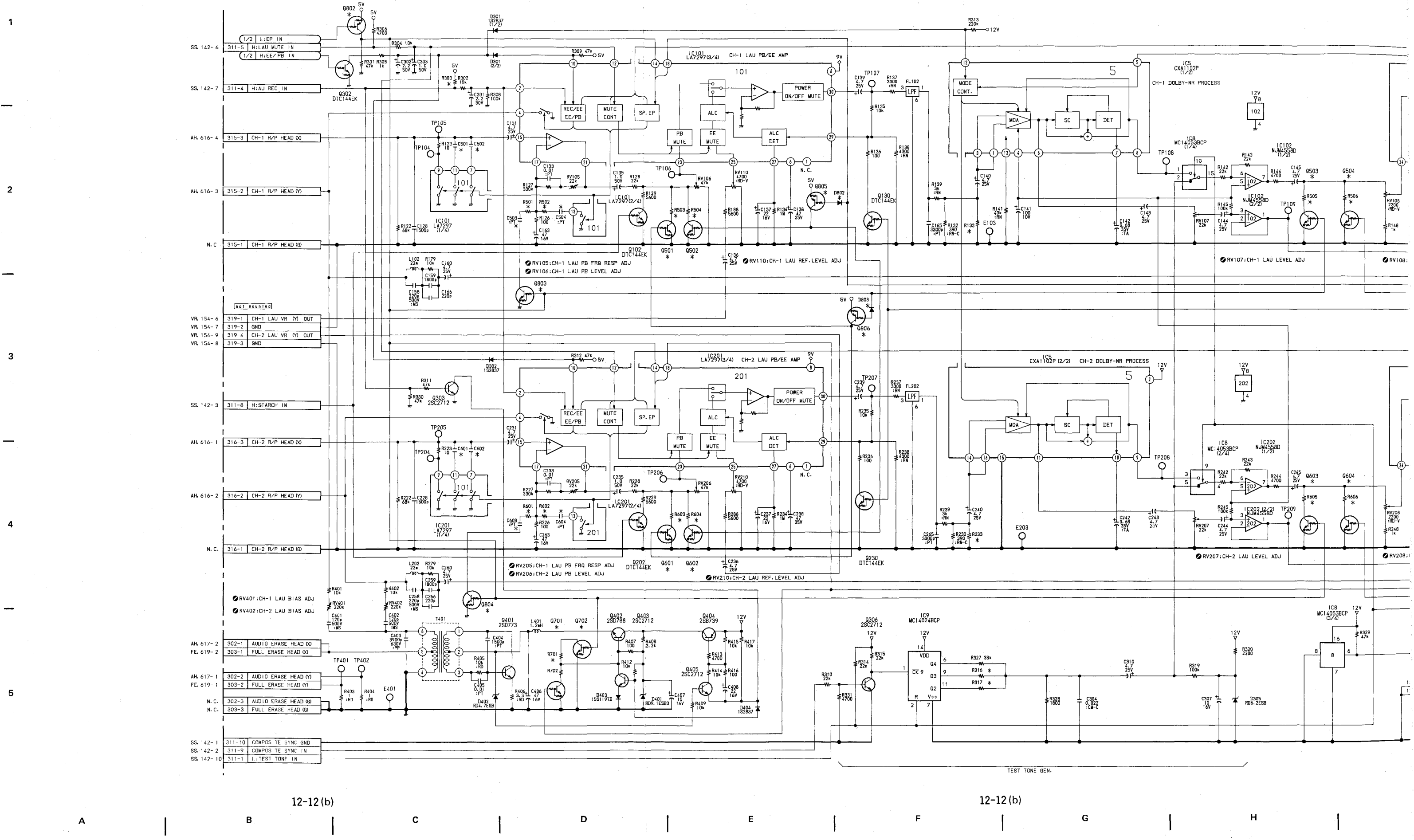

TP102 HOLD PULSE
IC1
AN3932S (2/3)
CH-1 MOD/DEMOD
D.O. DET
M.M.2
OR
RF LIMIT
P.C.
L.P.F.
RF LPF
VCO
LOOP
AUDIO LIMIT
HOLD
FL101
1.4MHZ
BPF
Q101
2SC2712
TP101
TP102
TP103
TP3
TP4
TP5
TP6
E101
E102
RV1:AFM SWITCHING POSITION ADJ
RV2:RF PB AMP GAIN ADJ
RV103:1.4MHz VCO ADJ
RV101:CH-1 AFM PB LEVEL ADJ
RV102:CH-1 AFM DEV. ADJ
RV104:CH-1 AFM REF. LEVEL ADJ
IC2
AN3972FC (1/2)
CH-1 AFM NR
AUDIO FILTER
REC
AGC
CCA
LEVEL SENSER
LINE
MUTE
N.C
Q12
DTA144EK
Q9
DTA144EK
Q11
DTA144EK
D5
1S2837
Q10
DTC144EK
TP111
L:AFM MUTE IN
H:AFM MUTE OUT
CH-1 AFM OUT
H:AFM OUT OUT
L:AFM OUT IN
AFM CH-1 RF OUT
312-3
312-1
312-7
313-2
313-5
312-8
2/2
SS. 141- 8
SS. 141- 10
SS. 141- 4
SS. 140- 7
SS. 140- 4
SS. 141- 3
003
IC1
AN3932S (3/3)
CH-2 MOD/DEMOD
SAME AS CH-1
FL201
1.8MHZ
Q201
2SC2712
Q8
2SC2712
REC 5V
TP201
TP203
E202
IC2
AN3972FC (2/2)
CH-2 AFM NR
TP211
CH-2 AFM OUT
AFM CH-2 RF OUT
RV3:REC RF LEVEL ADJ
RV201:CH-2 AFM PB LEVEL ADJ
RV204:CH-2 AFM REF. LEVEL ADJ
RV201:1.8MHz VCO ADJ
RV202:CH-2 AFM DEV. ADJ
5V
12V

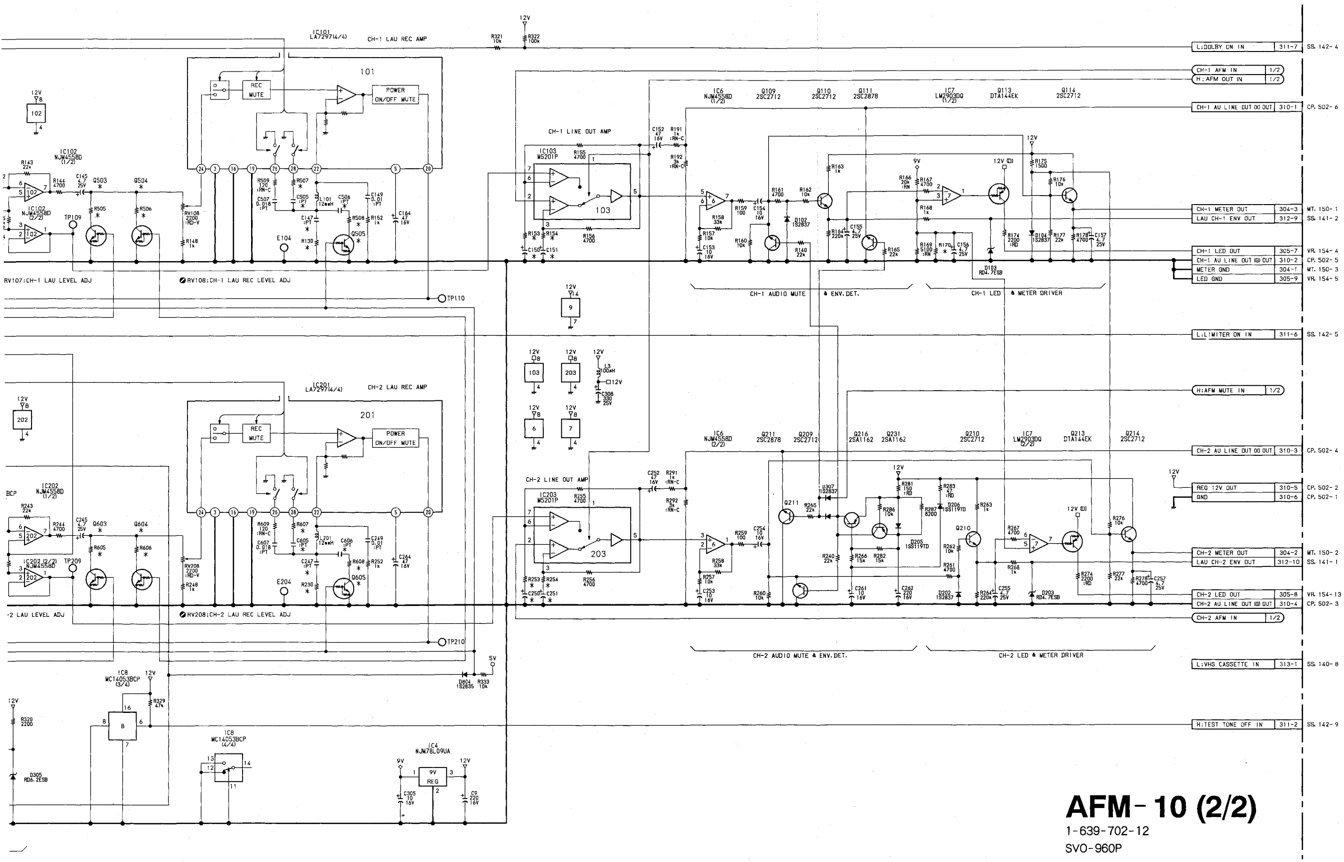
REF	FIN.REF								
	000	**100**	**200**	**300**	**400**	**500**	**600**	**700**	**800**
C	014	165	265	310	408	507	607	—	—
R	033	194	294	333	417	509	609	702	—
RV	003	110	210	—	402				
L	003	102	202	—	401				
FL	—	102	202	—	—				
TP	006	111	211	—	402				
E	104	204	—	—	401				
T	—	—	—	—	401				
D	005	104	206	307	404	—	—	—	804
Q	012	130	231	306	405	—	—	—	806
IC	009	103	203	—	—	—	—	—	—

AFM-10 (1/2)

1-639-702-12
SVO-960P

AFM-10 (2/2); NORMAL AUDIO PROCESS (Serial No. 14401 and higher)


1
2
3
4
5
SS. 142-6 311-5 H:LAU MUTE IN
1/2 L:EP IN
1/2 H:EE/PB IN
SS. 142-7 311-4 H:AU REC IN
AH. 616-4 315-3 CH-1 R/P HEAD (X)
AH. 616-3 315-2 CH-1 R/P HEAD (Y)
N.C 315-1 CH-1 R/P HEAD (G)
not mounted
VR. 154-6 319-1 CH-1 LAU VR (Y) OUT
VR. 154-7 319-2 GND
VR. 154-9 319-4 CH-2 LAU VR (Y) OUT
VR. 154-8 319-3 GND
SS. 142-3 311-8 H:SEARCH IN
AH. 616-1 316-3 CH-2 R/P HEAD (X)
AH. 616-2 316-2 CH-2 R/P HEAD (Y)
N.C. 316-1 CH-2 R/P HEAD (G)
AH. 617-2 302-1 AUDIO ERASE HEAD (X)
FE. 619-2 303-1 FULL ERASE HEAD (X)
AH. 617-1 302-2 AUDIO ERASE HEAD (Y)
FE. 619-1 303-2 FULL ERASE HEAD (Y)
N.C. 302-3 AUDIO ERASE HEAD (G)
N.C. 303-3 FULL ERASE HEAD (G)
SS. 142-1 311-10 COMPOSITE SYNC GND
SS. 142-2 311-9 COMPOSITE SYNC IN
SS. 147-10 311-1 L:TEST TONE IN
Q802
Q302 DTC144EK
D301 1S2837 (1/2)
IC101 LA7297(3/4) CH-1 LAU PB/EE AMP
REC/EE EE/PB
MUTE CONT
SP.EP
PB MUTE
EE MUTE
ALC
ALC DET
POWER ON/OFF MUTE
IC101 LA7297 (1/4)
IC101 LA7297(2/4)
Q102 DTC144EK
Q501
Q502
Q805
D802
Q130 DTC144EK
RV105:CH-1 LAU PB FRQ RESP ADJ
RV106:CH-1 LAU PB LEVEL ADJ
RV110:CH-1 LAU REF.LEVEL ADJ
Q803
Q806
D803
TP105
TP104
TP106
TP107
FL102 LPF
MODE CONT.
IC5 CXA1102P (1/2)
CH-1 DOLBY-NR PROCESS
MDA
SC
DET
E103
IC8 MC14053BCP (1/4)
IC102 NJM4558D (1/2)
IC102 NJM4558D (2/2)
TP108
TP109
Q503
Q504
RV107:CH-1 LAU LEVEL ADJ
D302 1S2837
Q303 2SC2712
IC201 LA7297(3/4) CH-2 LAU PB/EE AMP
IC201 LA7297 (1/4)
IC201 LA7297(2/4)
Q202 DTC144EK
Q601
Q602
Q230 DTC144EK
TP205
TP204
TP206
TP207
FL202 LPF
IC5 CXA1102P (2/2)
CH-2 DOLBY-NR PROCESS
E203
IC8 MC14053BCP (2/4)
IC202 NJM4558D (1/2)
IC202 (2/2) NJM4558D
TP208
TP209
Q603
Q604
RV207:CH-2 LAU LEVEL ADJ
RV205:CH-1 LAU PB FRQ RESP ADJ
RV206:CH-2 LAU PB LEVEL ADJ
RV210:CH-2 LAU REF.LEVEL ADJ
RV401:CH-1 LAU BIAS ADJ
RV402:CH-2 LAU BIAS ADJ
Q804
T401
Q401 2SD773
L401 1.2mH
Q701
Q702
Q402 2SD768
Q403 2SC2712
Q404 2SB739
Q405 2SC2712
D402 RD4.7ESB
D403 1SS119TD
D401 RD9.1ESB3
D404 1S2837
TP401
TP402
E401
Q306 2SC2712
IC9 MC14024BCP
IC8 MC14053BCP (3/4)
D305 RD6.2ESB
TEST TONE GEN.
A
B
C
D
E
F
G
H


IC101 LA7297(4/4)
CH-1 LAU REC AMP
101
REC MUTE
POWER ON/OFF MUTE
IC102 NJM4558D (1/2)
IC102 NJM4558D (2/2)
TP109
Q503
Q504
Q505
RV108 2200 :RD-V
E104
L101 12mH
RV107:CH-1 LAU LEVEL ADJ
RV108:CH-1 LAU REC LEVEL ADJ
TP110
CH-1 LINE OUT AMP
IC103 M5201P
103
IC6 NJM4558D (1/2)
Q109 2SC2712
Q110 2SC2712
Q111 2SC2878
IC7 LM2903DQ (1/2)
Q113 DTA144EK
Q114 2SC2712
D102 1S2837
D103 RD4.7ESB
D104 1S2837
CH-1 AUDIO MUTE & ENV. DET.
CH-1 LED & METER DRIVER
IC201 LA7297(4/4)
CH-2 LAU REC AMP
201
REC MUTE
POWER ON/OFF MUTE
IC202 NJM4558D (1/2)
IC202 (2/2) NJM4558D
TP209
Q603
Q604
Q605
RV208 2200 :RD-V
E204
L201 12mH
-2 LAU LEVEL ADJ
RV208:CH-2 LAU REC LEVEL ADJ
TP210
CH-2 LINE OUT AMP
IC203 M5201P
203
IC6 NJM4558D (2/2)
Q211 2SC2878
Q209 2SC2712
Q216 2SA1162
Q231 2SA1162
Q210 2SC2712
IC7 LM2903DQ (2/2)
Q213 DTA144EK
Q214 2SC2712
D307 1S2837
D205 1SS119TD
D206 1SS119TD
D202 1S2837
D203 RD4.7ESB
CH-2 AUDIO MUTE & ENV. DET.
CH-2 LED & METER DRIVER
L3 100μH
C308 330 25V
D804 1S2835
R333 10k
5V
IC8 MC14053BCP (3/4)
IC8 MC14053BCP (4/4)
R329 47k
R320 2200
D305 RD6.2ESB
IC4 NJM78L09UA
9V REG
C305 10 16V
C9 220 16V
L:DOLBY ON IN | 311-7 | SS. 142- 4
CH-1 AFM IN | 1/2
H; AFM OUT IN | 1/2
CH-1 AU LINE OUT (X) OUT | 310-1 | CP. 502- 6
CH-1 METER OUT | 304-3 | MT. 150- 1
LAU CH-1 ENV OUT | 312-9 | SS. 141- 2
CH-1 LED OUT | 305-7 | VR. 154- 4
CH-1 AU LINE OUT (G) OUT | 310-2 | CP. 502- 5
METER GND | 304-1 | MT. 150- 3
LED GND | 305-9 | VR. 154- 5
L:LIMITER ON IN | 311-6 | SS. 142- 5
H:AFM MUTE IN | 1/2
CH-2 AU LINE OUT (X) OUT | 310-3 | CP. 502- 4
REG 12V OUT | 310-5 | CP. 502- 2
GND | 310-6 | CP. 502- 1
CH-2 METER OUT | 304-2 | MT. 150- 2
LAU CH-2 ENV OUT | 312-10 | SS. 141- 1
CH-2 LED OUT | 305-8 | VR. 154-13
CH-2 AU LINE OUT (G) OUT | 310-4 | CP. 502- 3
CH-2 AFM IN | 1/2
L:VHS CASSETTE IN | 313-1 | SS. 140- 8
H:TEST TONE OFF IN | 311-2 | SS. 142- 9

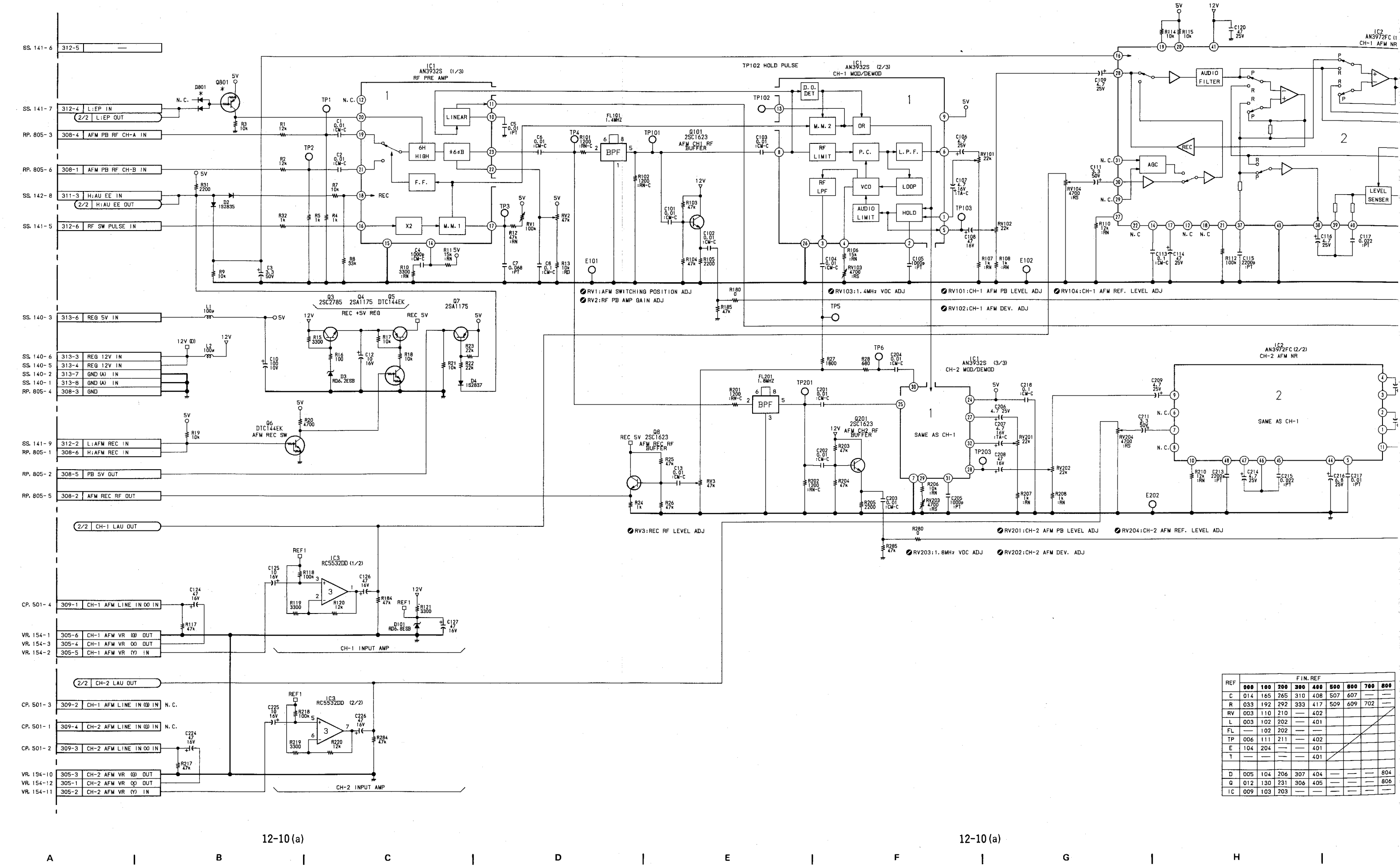
NOTE:

* NO MOUNT		
R130	C147	Q307
R133	C150	Q501
R153	C151	Q502
R154	C166	Q503
R170	C247	Q504
R184	C250	Q505
R230	C251	Q601
R233	C266	Q602
R253	C304	Q603
R254	C501	Q604
R284	C502	Q605
R303	C503	Q701
R316	C504	Q702
R317	C505	Q802
R501	C506	Q803
R502	C601	Q804
R503	C602	Q805
R504	C603	Q806
R505	C604	
R506	C605	
R507	C606	
R508		D802
R601		D803
R602		
R603		
R604		
R605		
R606		
R607		
R608		
R701		
R702		

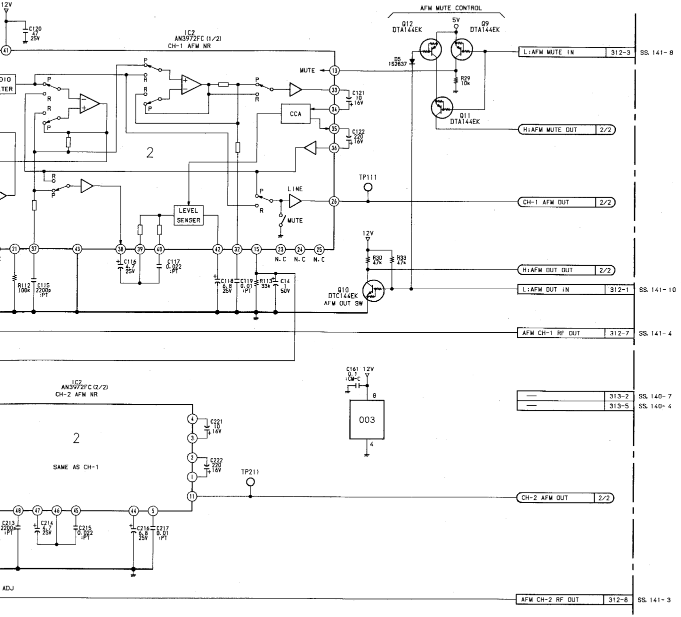
AFM-10 (2/2)

1-639-702-12
SVO-960P

AFM-10 (1/2); AFM PROCESS


SS. 141-6 312-5
SS. 141-7 312-4 L:EP IN
2/2 L:EP OUT
RP. 805-3 308-4 AFM PB RF CH-A IN
RP. 805-6 308-1 AFM PB RF CH-B IN
SS. 142-8 311-3 H:AU EE IN
2/2 H:AU EE OUT
SS. 141-5 312-6 RF SW PULSE IN
SS. 140-3 313-6 REG 5V IN
SS. 140-6 313-3 REG 12V IN
SS. 140-5 313-4 REG 12V IN
SS. 140-2 313-7 GND (A) IN
SS. 140-1 313-8 GND (A) IN
RP. 805-4 308-3 GND
SS. 141-9 312-2 L:AFM REC IN
RP. 805-1 308-6 H:AFM REC IN
RP. 805-2 308-5 PB 5V OUT
RP. 805-5 308-2 AFM REC RF OUT
2/2 CH-1 LAU OUT
CP. 501-4 309-1 CH-1 AFM LINE IN (X) IN
VR. 154-1 305-6 CH-1 AFM VR (G) OUT
VR. 154-3 305-4 CH-1 AFM VR (X) OUT
VR. 154-2 305-5 CH-1 AFM VR (Y) IN
2/2 CH-2 LAU OUT
CP. 501-3 309-2 CH-1 AFM LINE IN (G) IN N.C.
CP. 501-1 309-4 CH-2 AFM LINE IN (G) IN N.C.
CP. 501-2 309-3 CH-2 AFM LINE IN (X) IN
VR. 154-10 305-3 CH-2 AFM VR (G) OUT
VR. 154-12 305-1 CH-2 AFM VR (X) OUT
VR. 154-11 305-2 CH-2 AFM VR (Y) IN
IC1 AN3932S (1/3) RF PRE AMP
LINEAR
6H HIGH
±6dB
F.F.
X2
M.M.1
REC
FL101 1.4MHz
BPF
Q101 2SC1623 AFM CH1 RF BUFFER
TP102 HOLD PULSE
IC1 AN3932S (2/3) CH-1 MOD/DEMOD
D.O. DET
M.M.2
OR
RF LIMIT
P.C.
L.P.F.
RF LPF
VCO
LOOP
AUDIO LIMIT
HOLD
IC2 AN3972FC CH-1 AFM NR
AUDIO FILTER
REC
AGC
LEVEL SENSER
Q3 2SC2785
Q4 2SA1175
Q5 DTC144EK
REC +5V REG
Q7 2SA1175
Q6 DTC144EK AFM REC SW
Q8 2SC1623 AFM REC RF BUFFER
FL201 1.8MHz
Q201 2SC1623 AFM CH2 RF BUFFER
IC1 AN3932S (3/3) CH-2 MOD/DEMOD
SAME AS CH-1
IC2 AN3972FC (2/2) CH-2 AFM NR
SAME AS CH-1
IC3 RC5532DD (1/2)
CH-1 INPUT AMP
IC3 RC5532DD (2/2)
CH-2 INPUT AMP
RV1:AFM SWITCHING POSITION ADJ
RV2:RF PB AMP GAIN ADJ
RV103:1.4MHz VCO ADJ
RV101:CH-1 AFM PB LEVEL ADJ
RV102:CH-1 AFM DEV. ADJ
RV104:CH-1 AFM REF. LEVEL ADJ
RV3:REC RF LEVEL ADJ
RV201:CH-2 AFM PB LEVEL ADJ
RV204:CH-2 AFM REF. LEVEL ADJ
RV203:1.8MHz VCO ADJ
RV202:CH-2 AFM DEV. ADJ
A
B
C
D
E
F
G
H
1
2
3
4
5

REF	FIN.REF								
	000	100	200	300	400	500	600	700	800
C	014	165	265	310	408	507	607	—	—
R	033	192	292	333	417	509	609	702	—
RV	003	110	210	—	402				
L	003	102	202	—	401				
FL	—	102	202	—	—				
TP	006	111	211	—	402				
E	104	204	—	—	401				
T	—	—	—	—	401				
D	005	104	206	307	404	—	—	—	804
Q	012	130	231	306	405	—	—	—	806
IC	009	103	203	—	—	—	—	—	—


12V
C120 47 25V
41
IC2
AN3972FC (1/2)
CH-1 AFM NR
DIO
LTER
P
R
R
P
P
R
R
P
P
R
MUTE
13
33
34
35
36
26
C121 10 16V
C122 220 16V
CCA
2
R
P
LINE
P
R
MUTE
LEVEL SENSER
21
37
43
38
39
40
42
32
15
23
24
25
N.C
N.C
N.C
R112 100k
C115 2200p :PT
C116 4.7 25V
C117 0.022 :PT
C118 6.8 25V
C119 0.01 :PT
R113 33k
C14 1 50V
AFM MUTE CONTROL
Q12 DTA144EK
5V
Q9 DTA144EK
D5 1S2837
R29 10k
Q11 DTA144EK
TP111
12V
R30 47k
R33 47k
Q10 DTC144EK AFM OUT SW
L:AFM MUTE IN
312-3
SS. 141-8
H:AFM MUTE OUT
2/2
CH-1 AFM OUT
2/2
H:AFM OUT OUT
2/2
L:AFM OUT IN
312-1
SS. 141-10
AFM CH-1 RF OUT
312-7
SS. 141-4
C161 0.1 :CM-C
12V
8
003
4
—
313-2
SS. 140-7
—
313-5
SS. 140-4
IC2
AN3972FC (2/2)
CH-2 AFM NR
2
SAME AS CH-1
4
3
2
1
11
C221 10 16V
C222 220 16V
TP211
CH-2 AFM OUT
2/2
48
47
46
45
44
5
C213 2200p :PT
C214 4.7 25V
C215 0.022 :PT
C216 6.8 25V
C217 0.01 :PT
ADJ
AFM CH-2 RF OUT
312-8
SS. 141-3

REF	FIN. REF								
	000	100	200	300	400	500	600	700	800
C	014	165	265	310	408	507	607	—	—
R	033	192	292	333	417	509	609	702	—
RV	003	110	210	—	402				
L	003	102	202	—	401				
FL	—	102	202	—	—				
TP	006	111	211	—	402				
E	104	204	—	—	401				
T	—	—	—	—	401				
D	005	104	206	307	404	—	—	—	804
Q	012	130	231	306	405	—	—	—	806
IC	009	103	203	—	—	—	—	—	—

AFM-10(1/2)

1-639-702-11(1)
SV0-960P

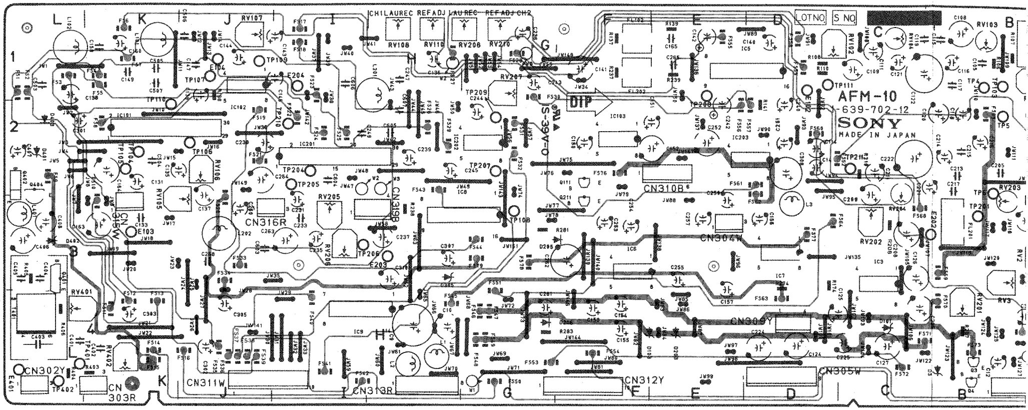
AFM-10; AFM/NORMAL AUDIO PROCESS

AFM-10 (1-639-702-12) A side

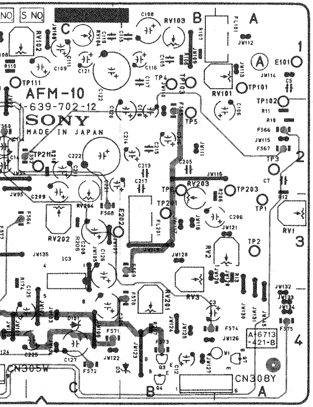
CN302	L-4	IC8	H-2	RV108	H-1
CN303	K-4	IC9	I-4	RV110	H-1
CN304	E-3	IC101	K-2	RV201	B-4
CN305	D-4	IC102	J-2	RV202	C-3
CN308	A-4	IC103	F-2	RV203	B-2
CN309	E-4	IC201	I-2	RV204	C-3
CN310	F-2	IC202	H-2	RV205	I-3
CN311	J-4	IC203	E-2	RV206	I-3
CN312	F-4			RV207	G-1
CN313	I-4	Q3	B-4	RV208	H-1
CN315	K-3	Q4	B-4	RV210	G-1
CN316	J-3	Q5	*C-4	RV401	L-4
CN319	H-2	Q6	*C-4	RV402	K-4
		Q7	A-4		
D2	*A-4	Q8	*B-4	TP1	A-3
D3	C-4	Q9	*D-3	TP2	A-3
D4	*A-4	Q10	*G-4	TP3	A-2
D5	*G-4	Q11	*G-4	TP4	B-1
D101	C-4	Q12	*G-4	TP5	B-2
D102	*F-4	Q101	*A-1	TP6	B-2
D103	E-4	Q102	*K-3	TP101	A-1
D104	*E-3	Q109	*F-3	TP102	A-2
D202	*E-3	Q110	*F-4	TP103	B-1
D203	E-4	Q111	F-2	TP104	K-2
D205	G-3	Q113	*D-3	TP105	K-2
D206	F-4	Q114	*E-4	TP106	J-2
D301	*K-1	Q130	*J-3	TP107	J-1
D302	*I-2	Q201	*B-3	TP108	G-3
D305	H-3	Q202	*K-4	TP109	J-1
D307	*G-4	Q209	*F-3	TP110	K-1
D401	L-2	Q210	*E-3	TP111	D-1
D402	L-3	Q211	F-3	TP201	B-3
D403	L-2	Q213	*D-3	TP203	A-2
D404	*L-3	Q214	*E-3	TP204	I-2
D804	*K-4	Q216	*G-3	TP205	I-2
		Q230	*I-3	TP206	I-3
E101	A-1	Q231	*G-3	TP207	G-2
E102	D-1	Q302	*J-4	TP208	E-2
E103	K-3	Q303	*L-3	TP209	G-1
E104	J-1	Q306	*I-4	TP210	I-2
E202	D-3	Q401	L-3	TP211	C-2
E203	H-3	Q402	L-2	TP401	K-4
E204	I-1	Q403	*L-2	TP402	L-4
		Q404	L-2		
FL101	A-1	Q405	*L-3	T401	L-4
FL102	F-1				
FL201	B-3	RV1	A-3		
FL202	F-1	RV2	B-3		
		RV3	B-4		
IC1	*A-2	RV101	B-1		
IC2	*C-1	RV102	C-1		
IC3	C-3	RV103	B-1		
IC4	*J-4	RV104	C-1		
IC5	E-1	RV105	K-2		
IC6	F-3	RV106	J-2		
IC7	D-3	RV107	J-1		

* mark ; B side mount

A SIDE

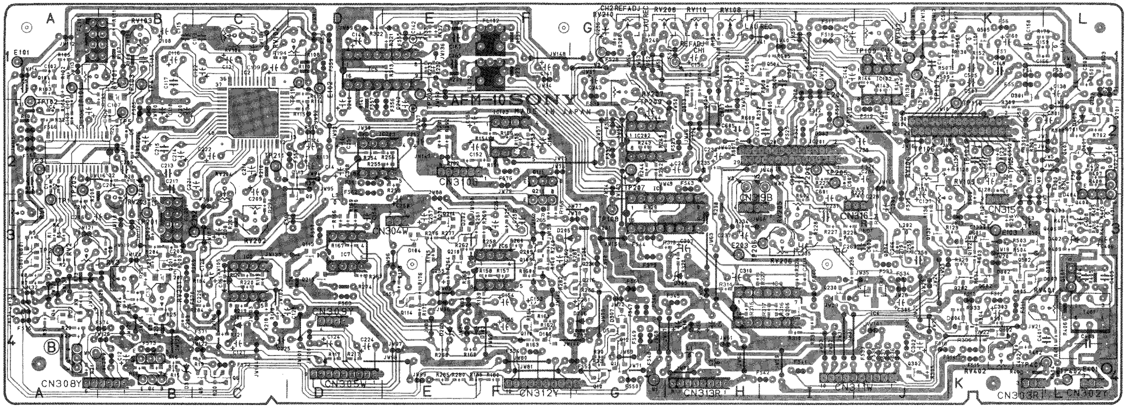

L
K
J
I
H
G
F
E
D
C
B
1
2
3
4
CH1 LA UREC REF ADJ
LA UREC REF ADJ CH2
RV107
RV108
RV110
RV208
RV210
RV207
RV205
RV206
RV401
RV402
RV202
RV203
RV201
RV103
RV102
RV105
RV106
DIP
LOT NO
S NO
AFM-10
1-639-702-12
SONY
MADE IN JAPAN
IC101
IC102
IC201
IC103
IC203
IC5
IC6
IC7
IC8
IC9
CN302Y
CN303R
CN311W
CN313R
CN312Y
CN305W
CN316R
CN319B
CN315W
CN310B
CN304W
CN309Y
TP101
TP102
TP103
TP104
TP105
TP106
TP107
TP109
TP110
TP111
TP201
TP204
TP205
TP206
TP207
TP208
TP209
TP210
TP211
TP401
TP402
E101
E103
E104
E204
E203
E202

AFM-1
1-639-702-1
SVO-960
SVO-960P


AFM-10
1-639-702-12
SONY
MADE IN JAPAN
CN305W
CN308Y
A-6713-421-B

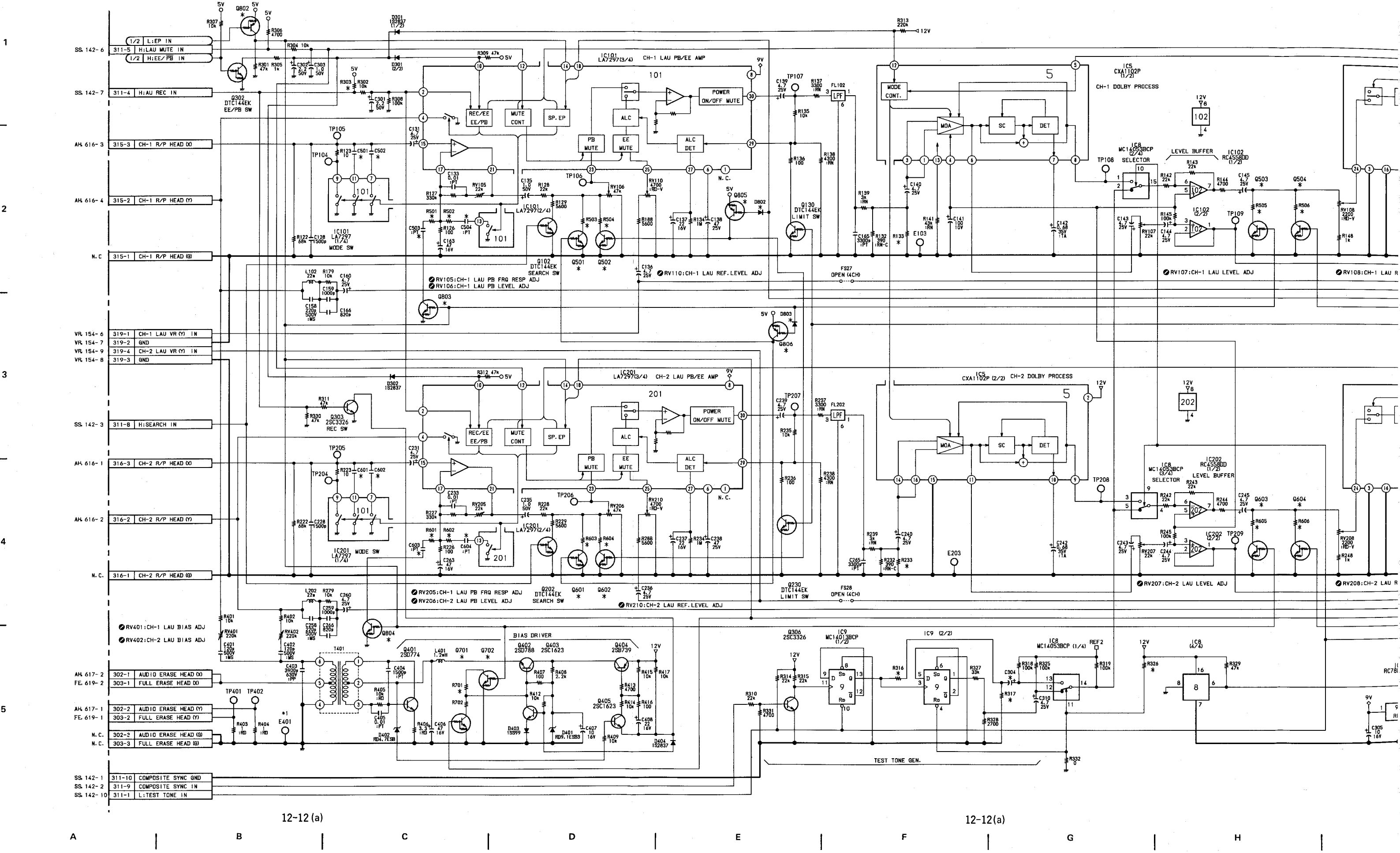
AFM-10/A - A SIDE -
1-639-702-12
SVO-960
SVO-960P

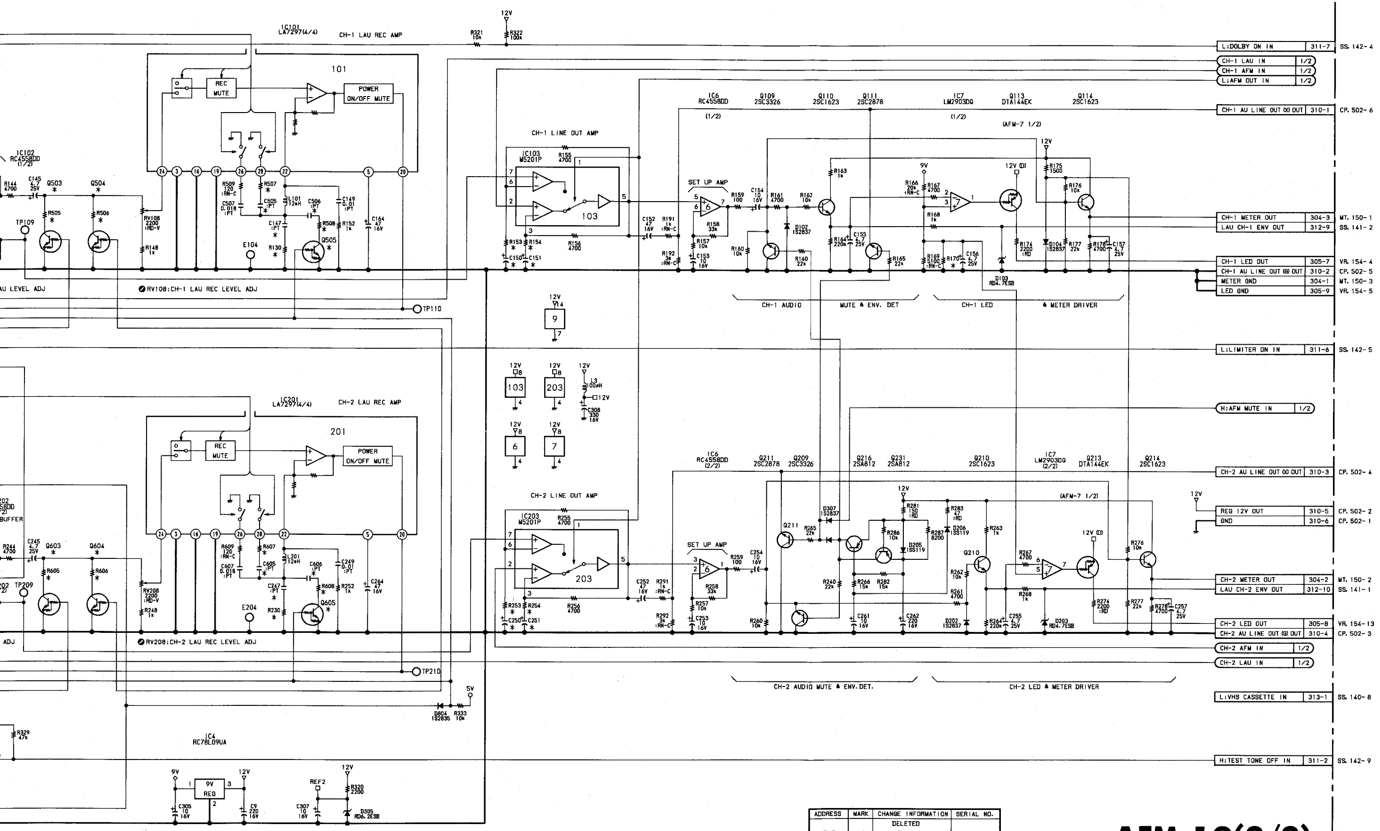
B SIDE


AFM-10 SONY
MADE IN JAPAN
CN308Y
CN305W
CN312Y
CN313R
CN311W
CN303R
CN102Y
CN310G
CN304W
CN309Y
CN319B
CN316
CN315

AFM-10/A - B SIDE -
1-639-702-12
SVO-960
SVO-960P

AFM-10 (2/2) ; NORMAL AUDIO PROCESS


1
2
3
4
5
SS. 142-6
311-5 H:LAU MUTE IN
1/2 L:EP IN
1/2 H:EE/PB IN
SS. 142-7
311-4 H:AU REC IN
AH. 616-3
315-3 CH-1 R/P HEAD (X)
AH. 616-4
315-2 CH-1 R/P HEAD (Y)
N.C
315-1 CH-1 R/P HEAD (G)
VR. 154-6
319-1 CH-1 LAU VR (Y) IN
VR. 154-7
319-2 GND
VR. 154-9
319-4 CH-2 LAU VR (Y) IN
VR. 154-8
319-3 GND
SS. 142-3
311-8 H:SEARCH IN
AH. 616-1
316-3 CH-2 R/P HEAD (X)
AH. 616-2
316-2 CH-2 R/P HEAD (Y)
N.C.
316-1 CH-2 R/P HEAD (G)
AH. 617-2
302-1 AUDIO ERASE HEAD (X)
FE. 619-2
303-1 FULL ERASE HEAD (X)
AH. 617-1
302-2 AUDIO ERASE HEAD (Y)
FE. 619-1
303-2 FULL ERASE HEAD (Y)
N.C.
302-3 AUDIO ERASE HEAD (G)
N.C.
303-3 FULL ERASE HEAD (G)
SS. 142-1
311-10 COMPOSITE SYNC GND
SS. 142-2
311-9 COMPOSITE SYNC IN
SS. 142-10
311-1 L:TEST TONE IN
Q802
Q302 DTC144EK EE/PB SW
D301 1S2837 (1/2)
D301 (2/2)
IC101 LA7297(3/4) CH-1 LAU PB/EE AMP
101
REC/EE EE/PB
MUTE CONT
SP. EP
PB MUTE
EE MUTE
ALC
ALC DET
POWER ON/OFF MUTE
TP105
TP104
IC101 LA7297 (1/4) MODE SW
IC101 LA7297(2/4)
Q102 DTC144EK SEARCH SW
Q501
Q502
TP106
Q805
D802
Q130 DTC144EK LIMIT SW
TP107
FL102
LPF
E103
FS27 OPEN (4CH)
Q803
Q806
D803
RV105:CH-1 LAU PB FRQ RESP ADJ
RV106:CH-1 LAU PB LEVEL ADJ
RV110:CH-1 LAU REF. LEVEL ADJ
R313 220k
12V
MODE CONT.
IC5 CXA1102P (1/2)
CH-1 DOLBY PROCESS
MOA
SC
DET
5
102
IC8 MC14053BCP (2/4) SELECTOR
LEVEL BUFFER
IC102 RC4558DD (1/2)
IC102 (2/2)
TP108
TP109
Q503
Q504
RV107:CH-1 LAU LEVEL ADJ
RV108:CH-1 LAU
D302 1S2837
IC201 LA7297(3/4) CH-2 LAU PB/EE AMP
201
R311 47k
Q303 2SC3326 REC SW
TP205
TP204
IC201 MODE SW LA7297 (1/4)
IC201 LA7297(2/4)
Q202 DTC144EK SEARCH SW
Q601
Q602
TP206
TP207
FL202
Q230 DTC144EK LIMIT SW
FS28 OPEN (4CH)
E203
RV205:CH-1 LAU PB FRQ RESP ADJ
RV206:CH-2 LAU PB LEVEL ADJ
RV210:CH-2 LAU REF. LEVEL ADJ
IC5 CXA1102P (2/2) CH-2 DOLBY PROCESS
202
IC8 MC14053BCP (3/4) SELECTOR
IC202 RC4558DD (1/2) LEVEL BUFFER
IC202 (2/2)
TP208
TP209
Q603
Q604
RV207:CH-2 LAU LEVEL ADJ
RV208:CH-2 LAU
RV401:CH-1 LAU BIAS ADJ
RV402:CH-2 LAU BIAS ADJ
Q804
T401
TP401
TP402
E401
Q401 2SD774
L401 1.2mH
Q701
Q702
BIAS DRIVER
Q402 2SD788
Q403 2SC1623
Q404 2SB739
Q405 2SC1623
D402 RD4.7ESB
D403 1SS99
D401 RD9.1ESB3
D404 1S2837
Q306 2SC3326
IC9 MC14013BCP (1/2)
IC9 (2/2)
IC8 MC14053BCP (1/4)
REF2
IC8 (4/4)
TEST TONE GEN.
A
B
C
D
E
F
G
H


IC101 LA7297(4/4)
CH-1 LAU REC AMP
101
REC MUTE
POWER ON/OFF MUTE
IC102 RC4558DD (1/2)
Q503
Q504
TP109
E104
Q505
RV108 2200 :RD-V
RV108:CH-1 LAU REC LEVEL ADJ
AU LEVEL ADJ
TP110
R321 10k
R322 100k
12V
CH-1 LINE OUT AMP
IC103 M5201P
103
IC6 RC4558DD (1/2)
Q109 2SC3326
Q110 2SC1623
Q111 2SC2878
IC7 LM2903DQ (1/2)
Q113 DTA144EK
Q114 2SC1623
(AFM-7 1/2)
SET UP AMP
D102 1S2837
D103 RD4.7ESB
D104 1S2837
CH-1 AUDIO
MUTE & ENV. DET
CH-1 LED
& METER DRIVER
9
103
203
6
7
L3 100μH
C308 330 16V
IC201 LA7297(4/4)
CH-2 LAU REC AMP
201
REC MUTE
POWER ON/OFF MUTE
IC202 RC4558DD BUFFER
Q603
Q604
TP209
E204
Q605
RV208 2200 :RD-V
RV208:CH-2 LAU REC LEVEL ADJ
TP210
CH-2 LINE OUT AMP
IC203 M5201P
203
IC6 RC4558DD (2/2)
Q211 2SC2878
Q209 2SC3326
Q216 2SA812
Q231 2SA812
Q210 2SC1623
IC7 LM2903DD (2/2)
Q213 DTA144EK
Q214 2SC1623
(AFM-7 1/2)
D307 1S2837
D206 1SS119
D205 1SS119
D202 1S2837
D203 RD4.7ESB
CH-2 AUDIO MUTE & ENV. DET.
CH-2 LED & METER DRIVER
D804 1S2835
R333 10k
5V
IC4 RC78L09UA
9V REG
REF2
R320 2200
D305 RD6.2ESB
R329 47k
L:DOLBY ON IN | 311-7 | SS. 142-4
CH-1 LAU IN | 1/2
CH-1 AFM IN | 1/2
L:AFM OUT IN | 1/2
CH-1 AU LINE OUT (X) OUT | 310-1 | CP. 502-6
CH-1 METER OUT | 304-3 | MT. 150-1
LAU CH-1 ENV OUT | 312-9 | SS. 141-2
CH-1 LED OUT | 305-7 | VR. 154-4
CH-1 AU LINE OUT (G) OUT | 310-2 | CP. 502-5
METER GND | 304-1 | MT. 150-3
LED GND | 305-9 | VR. 154-5
L:LIMITER ON IN | 311-6 | SS. 142-5
H:AFM MUTE IN | 1/2
CH-2 AU LINE OUT (X) OUT | 310-3 | CP. 502-4
REG 12V OUT | 310-5 | CP. 502-2
GND | 310-6 | CP. 502-1
CH-2 METER OUT | 304-2 | MT. 150-2
LAU CH-2 ENV OUT | 312-10 | SS. 141-1
CH-2 LED OUT | 305-8 | VR. 154-13
CH-2 AU LINE OUT (G) OUT | 310-4 | CP. 502-3
CH-2 AFM IN | 1/2
CH-2 LAU IN | 1/2
L:VHS CASSETTE IN | 313-1 | SS. 140-8
H:TEST TONE OFF IN | 311-2 | SS. 142-9

NOTE;

* NO MOUNT		
R130	C147	Q307
R133	C150	Q501
R153	C151	Q502
R154		Q503
R170	C247	Q504
R230	C250	Q505
R233	C251	Q601
R253		Q602
R254	C304	Q603
R303	C501	Q604
R316	C502	Q605
R317	C503	Q701
R326	C504	Q702
R501	C505	Q802
R502	C506	Q803
R503	C601	Q804
R504	C602	Q805
R505	C603	Q806
R506	C604	
R507	C605	
R508	C606	
R601		D802
R602		D803
R603		
R604		
R605		
R606		
R607		
R608		
R701		
R702		

ADDRESS	MARK	CHANGE INFORMATION	SERIAL NO.
B-5	*1	DELETED E401	11301-

AFM-10(2/2)

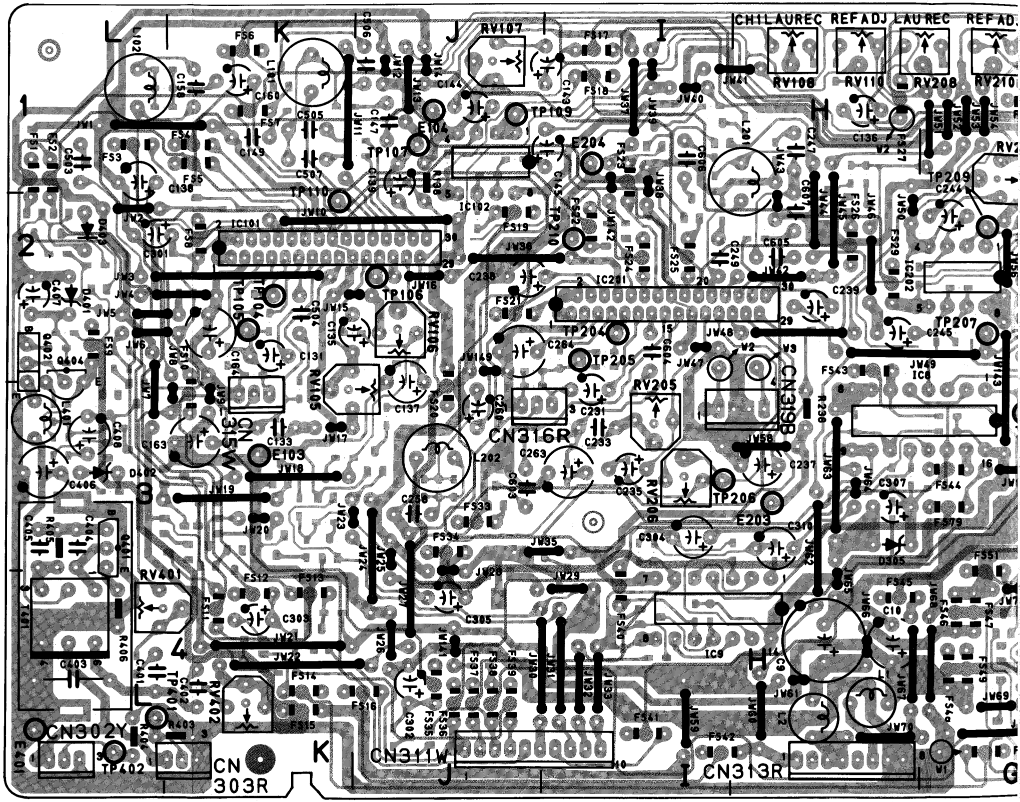
1-639-702-11(1)
SVO-960P

AFM-10; AFM/NORMAL AUDIO PROCESS

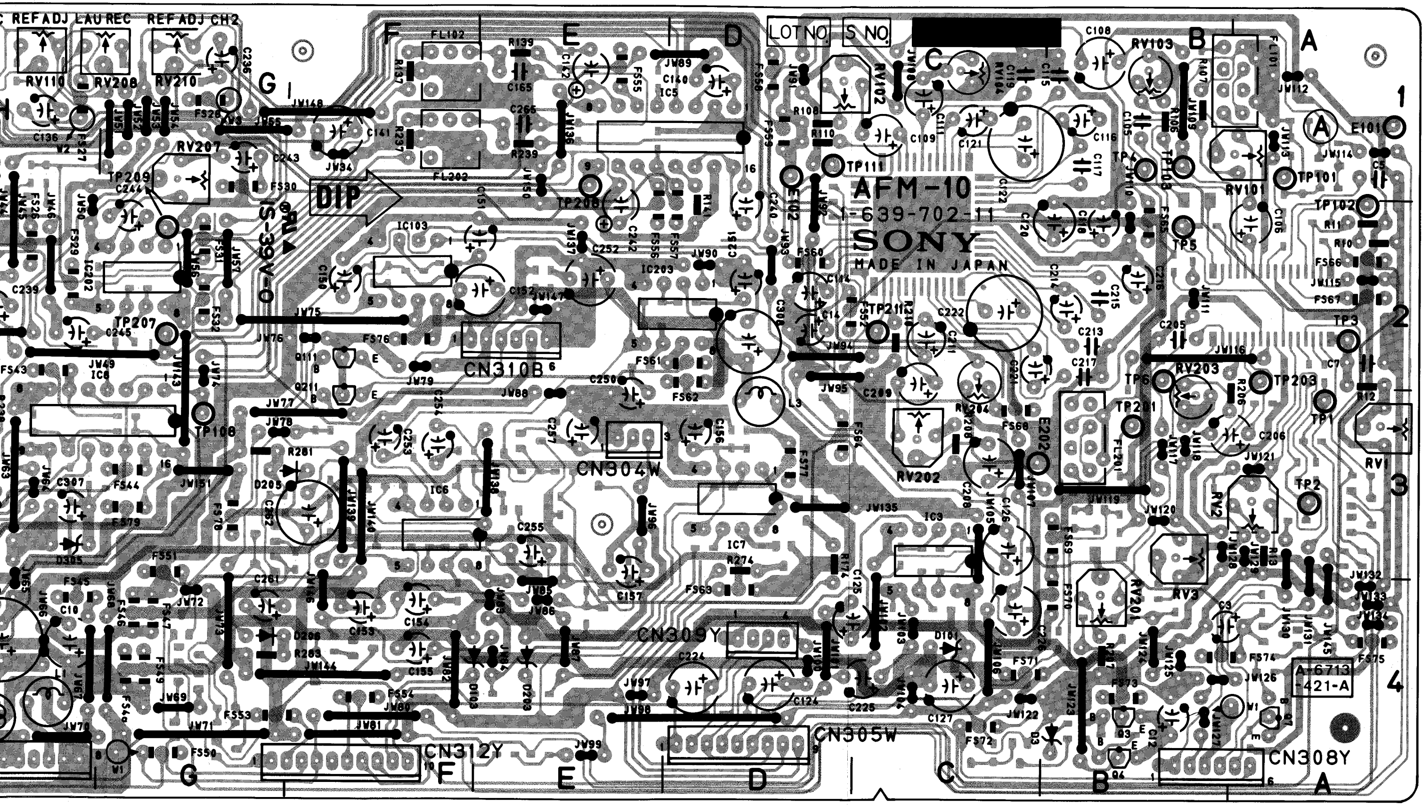
AFM-10 (1-639-702-11) A SIDE

CN302	L-4
CN303	K-4
CN304	E-3
CN305	D-4
CN308	A-4
CN309	E-4
CN310	F-2
CN311	J-4
CN312	F-4
CN313	I-4
CN315	K-3
CN316	J-3
CN319	H-2
D2	⋆A-4
D3	C-4
D4	⋆A-4
D5	⋆G-4
D101	C-4
D102	⋆F-4
D103	E-4
D104	⋆E-3
D202	⋆E-3
D203	E-4
D205	G-3
D206	F-4
D301	⋆K-1
D302	⋆I-2
D305	H-3
D307	⋆G-4
D401	L-2
D402	L-3
D403	L-2
D404	⋆L-2
D804	⋆J-4
E101	A-1
E102	D-1
E103	K-3
E104	J-1
E202	B-3
E203	H-3
E204	I-1
E401	L-4
FL101	A-1
FL102	F-1
FL201	B-3
FL202	F-1
IC1	⋆A-2
IC2	⋆C-1
IC3	C-3
IC4	⋆J-4
IC5	E-1
IC6	F-3
IC7	D-3
IC8	H-2
IC9	I-4
IC101	K-2
IC102	J-2
IC103	F-2
IC201	I-2
IC202	H-2
IC203	E-2
Q3	B-4
Q4	B-4
Q5	⋆C-4
Q6	⋆C-4
Q7	A-4
Q8	⋆B-4
Q9	⋆D-3
Q10	⋆G-4
Q11	⋆G-4
Q12	⋆G-4
Q101	⋆A-1
Q102	⋆K-3
Q109	⋆F-3
Q110	⋆F-4
Q111	F-2
Q113	⋆D-3
Q114	⋆E-4
Q130	⋆J-3
Q201	⋆B-3
Q202	⋆K-3
Q209	⋆F-3
Q210	⋆E-3
Q211	F-3
Q213	⋆D-3
Q214	⋆E-3
Q216	⋆G-3
Q230	⋆I-3
Q231	⋆G-3
Q302	⋆J-4
Q303	⋆L-3
Q306	⋆I-4
Q401	L-3
Q402	L-2
Q403	⋆L-2
Q404	⋆L-3
Q405	⋆L-3
RV1	A-3
RV2	B-3
RV3	B-4
RV101	B-1
RV102	C-1
RV103	B-1
RV104	C-1
RV105	K-2
RV106	J-2
RV107	J-1
RV108	H-1
RV110	H-1
RV201	B-4
RV202	C-3
RV203	B-2
RV204	C-3
RV205	I-3
RV206	I-3
RV207	G-1
RV208	H-1
RV210	G-1
RV401	L-4
RV402	K-4
TP1	A-3
TP2	A-3
TP3	A-2
TP4	B-1
TP5	B-2
TP6	B-2
TP101	A-1
TP102	A-2
TP103	B-1
TP104	K-2
TP105	K-2
TP106	J-2
TP107	J-1
TP108	G-3
TP109	J-1
TP110	K-2
TP111	D-1
TP201	B-3
TP203	A-2
TP204	I-2
TP205	I-2
TP206	I-3
TP207	G-2
TP208	E-2
TP209	G-1
TP210	I-2
TP211	C-2
TP401	K-4
TP402	L-4
T401	L-4

⋆ mark ; B SIDE MOUNT.


L
K
J
I
H
G
1
2
3
4
CH1 LAUREC
REFADJ
LAU REC
REF ADJ
RV107
RV108
RV110
RV208
RV210
IC101
IC102
IC201
IC202
IC8
IC9
TP104
TP105
TP106
TP107
TP109
TP110
TP204
TP205
TP206
TP207
TP209
TP210
TP401
TP402
E103
E104
E203
E204
E401
CN315W
CN316R
CN319B
CN302Y
CN303R
CN311W
CN313R
RV105
RV106
RV205
RV206
RV401
RV402
L101
L102
L201
L202
L401
T401
D305
D401
D402
D403
Q401
Q402
Q404

A Side is


REF ADJ
LAU REC
REF ADJ CH2
RV110
RV208
RV210
RV207
RV103
RV101
RV102
RV104
RV201
RV202
RV203
RV204
RV1
RV2
RV3
LOT NO.
S NO.
[redacted]
AFM-10
1-639-702-11
SONY
MADE IN JAPAN
DIP
IS-39V-0
IC103
IC202
IC203
IC5
IC6
IC7
IC3
IC8
CN310B
CN304W
CN309Y
CN312Y
CN305W
CN308Y
FL101
FL102
FL201
FL202
TP1
TP2
TP3
TP4
TP5
TP6
TP101
TP102
TP103
TP108
TP111
TP201
TP203
TP207
TP208
TP209
TP211
E101
E102
E202
L1
L3
D101
D203
D205
D206
D305
Q111
Q211
Q3
Q4
A-6713-421-A
A
B
C
D
E
F
G
1
2
3
4

AFM-10 -A SIDE-
1-639-702-11(1)
SV0-960P

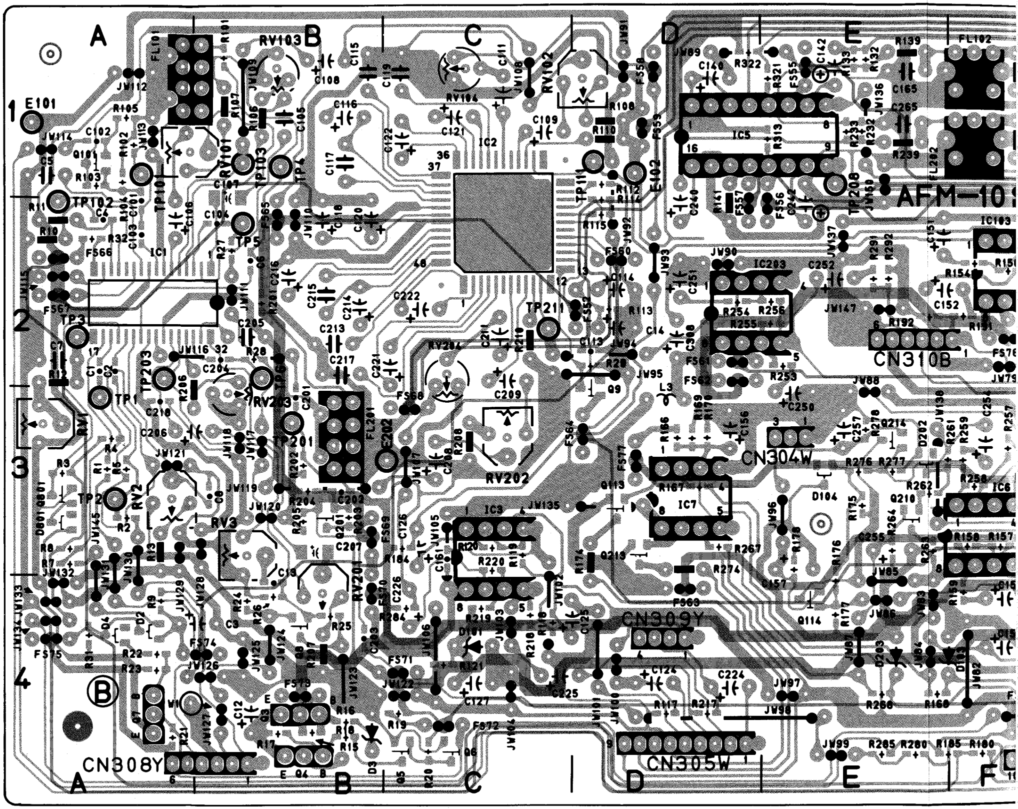
A Side is the same as COMPONENT Side

AFM-10; AFM/NORMAL AUDIO PROCESS

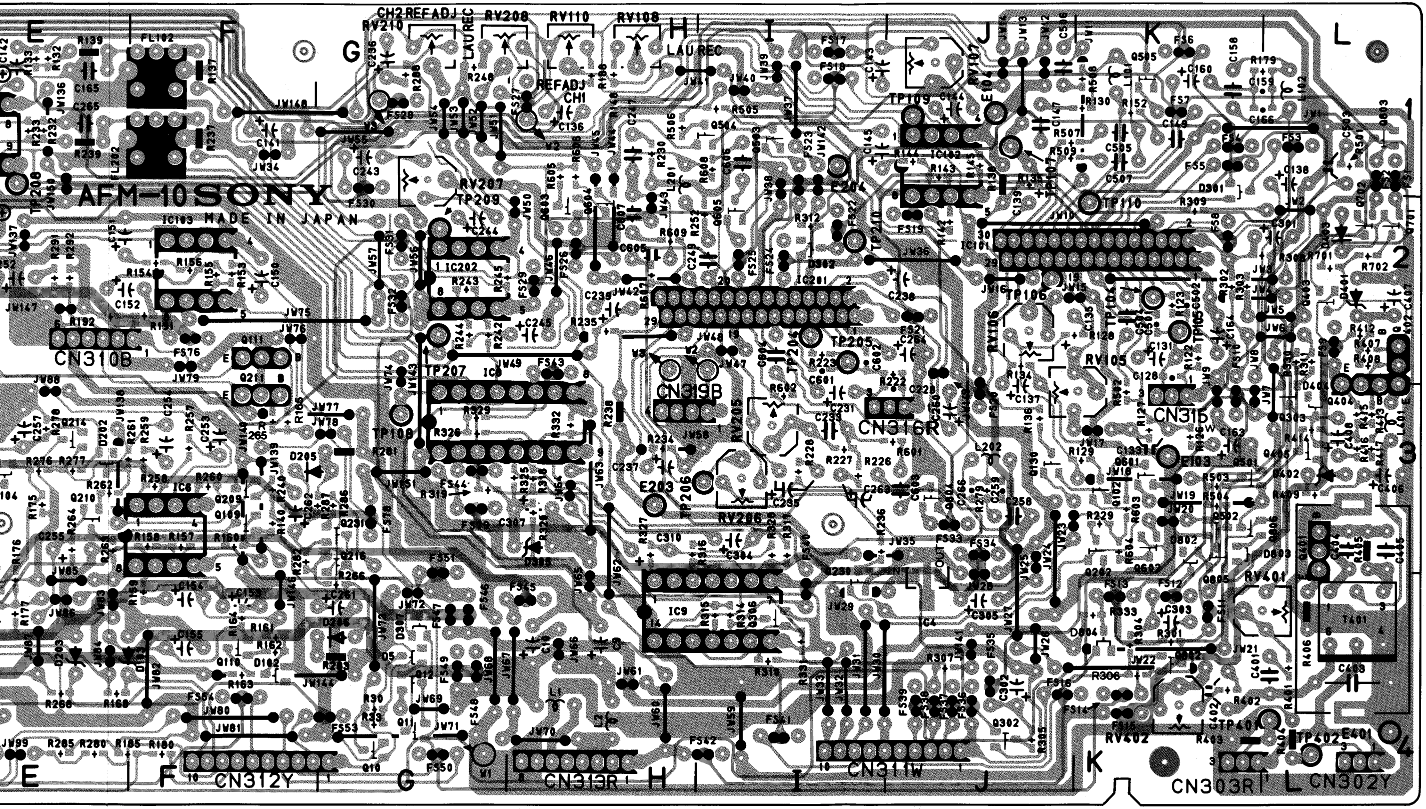
AFM-10 (1-639-702-11) B SIDE

CN302	L-4
CN303	K-4
CN304	E-3
CN305	D-4
CN308	A-4
CN309	E-4
CN310	F-2
CN311	J-4
CN312	F-4
CN313	I-4
CN315	K-3
CN316	J-3
CN319	H-2
D2	⋆A-4
D3	C-4
D4	⋆A-4
D5	⋆G-4
D101	C-4
D102	⋆F-4
D103	E-4
D104	⋆E-3
D202	⋆E-3
D203	E-4
D205	G-3
D206	F-4
D301	⋆K-1
D302	⋆I-2
D305	H-3
D307	⋆G-4
D401	L-2
D402	L-3
D403	L-2
D404	⋆L-2
D804	⋆J-4
E101	A-1
E102	D-1
E103	K-3
E104	J-1
E202	B-3
E203	H-3
E204	I-1
E401	L-4
FL101	A-1
FL102	F-1
FL201	B-3
FL202	F-1
IC1	⋆A-2
IC2	⋆C-1
IC3	C-3
IC4	⋆J-4
IC5	E-1
IC6	F-3
IC7	D-3
IC8	H-2
IC9	I-4
IC101	K-2
IC102	J-2
IC103	F-2
IC201	I-2
IC202	H-2
IC203	E-2
Q3	B-4
Q4	B-4
Q5	⋆C-4
Q6	⋆C-4
Q7	A-4
Q8	⋆B-4
Q9	⋆D-3
Q10	⋆G-4
Q11	⋆G-4
Q12	⋆G-4
Q101	⋆A-1
Q102	⋆K-3
Q109	⋆F-3
Q110	⋆F-4
Q111	F-2
Q113	⋆D-3
Q114	⋆E-4
Q130	⋆J-3
Q201	⋆B-3
Q202	⋆K-3
Q209	⋆F-3
Q210	⋆E-3
Q211	F-3
Q213	⋆D-3
Q214	⋆E-3
Q216	⋆G-3
Q230	⋆I-3
Q231	⋆G-3
Q302	⋆J-4
Q303	⋆L-3
Q306	⋆I-4
Q401	L-3
Q402	L-2
Q403	⋆L-2
Q404	⋆L-3
Q405	⋆L-3
RV1	A-3
RV2	B-3
RV3	B-4
RV101	B-1
RV102	C-1
RV103	B-1
RV104	C-1
RV105	K-2
RV106	J-2
RV107	J-1
RV108	H-1
RV110	H-1
RV201	B-4
RV202	C-3
RV203	B-2
RV204	C-3
RV205	I-3
RV206	I-3
RV207	G-1
RV208	H-1
RV210	G-1
RV401	L-4
RV402	K-4
TP1	A-3
TP2	A-3
TP3	A-2
TP4	B-1
TP5	B-2
TP6	B-2
TP101	A-1
TP102	A-2
TP103	B-1
TP104	K-2
TP105	K-2
TP106	J-2
TP107	J-1
TP108	G-3
TP109	J-1
TP110	K-2
TP111	D-1
TP201	B-3
TP203	A-2
TP204	I-2
TP205	I-2
TP206	I-3
TP207	G-2
TP208	E-2
TP209	G-1
TP210	I-2
TP211	C-2
TP401	K-4
TP402	L-4
T401	L-4

⋆ mark; B SIDE MOUNT.


A
B
C
D
E
F
1
2
3
4
AFM-10
IC1
IC2
IC3
IC5
IC7
IC103
IC203
FL101
FL102
FL201
RV103
RV202
RV203
RV3
CN308Y
CN305W
CN309Y
CN310B
CN304W
E101
TP102
TP3
TP1
TP2

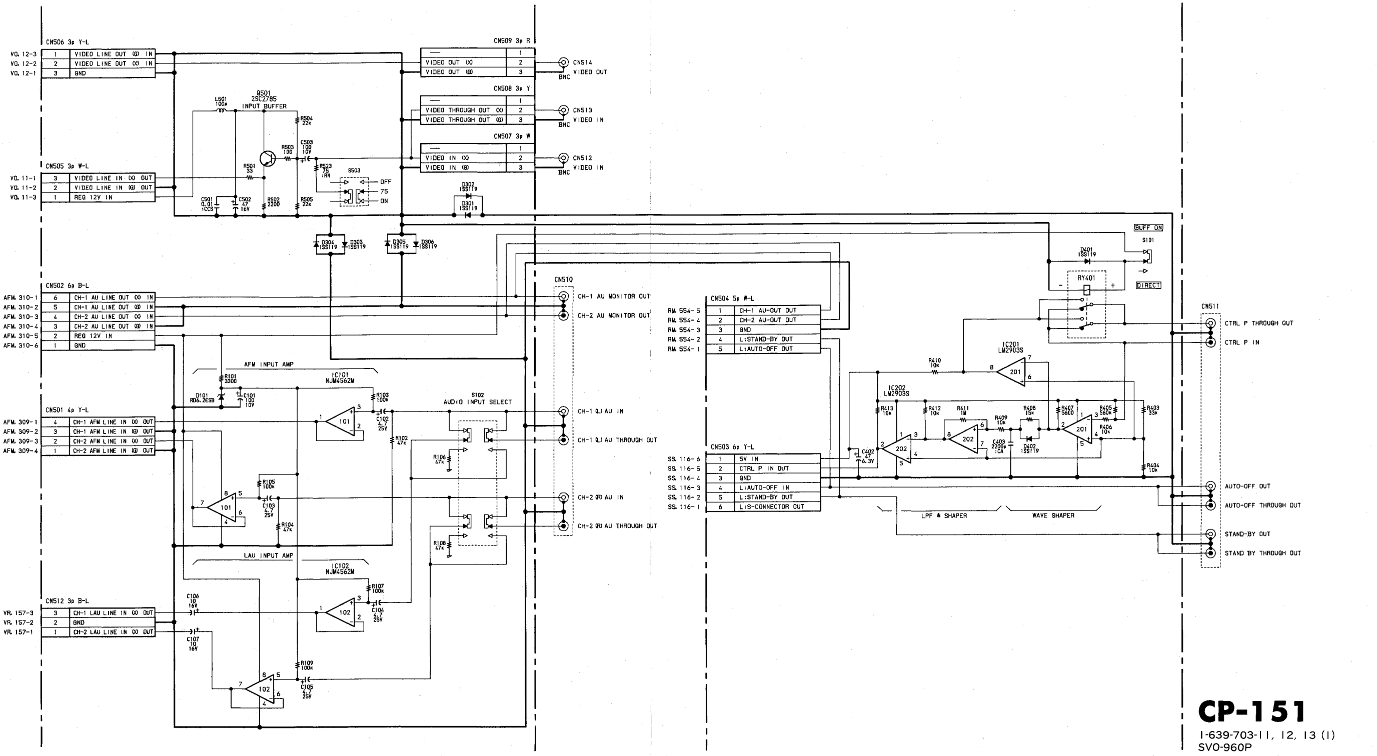
B Side


AFM-10 SONY
MADE IN JAPAN
IC103
IC202
IC201
IC101
IC6
IC9
IC4
CN310B
CN319B
CN316R
CN315
CN312Y
CN313R
CN311W
CN303R
CN302Y
RV210
RV208
RV110
RV108
RV207
RV206
RV205
RV106
RV105
RV401
RV402
FL102
FL202
T401
TP209
TP207
TP108
TP205
TP206
TP109
TP110
TP106
TP401
TP402
E203
E204
E103
E401
CH2 REF ADJ
LAU REC
REF ADJ CH1

AFM-10 B SIDE
1-639-702-11(1)
SVO-960P

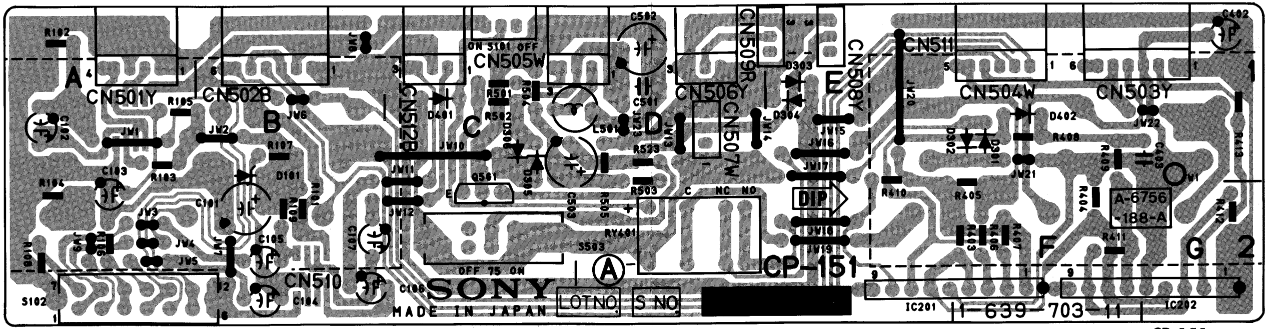
B Side is the same as SOLDER Side

CP-151; CONNECTOR PANEL


CN506 3p Y-L
VO. 12-3
VO. 12-2
VO. 12-1
VIDEO LINE OUT (G) IN
VIDEO LINE OUT (X) IN
GND
CN509 3p R
VIDEO OUT (X)
VIDEO OUT (G)
CN514
VIDEO OUT
BNC
CN508 3p Y
VIDEO THROUGH OUT (X)
VIDEO THROUGH OUT (G)
CN513
VIDEO IN
CN507 3p W
VIDEO IN (X)
VIDEO IN (G)
CN512
L501 100μ
Q501 2SC2785 INPUT BUFFER
R504 22k
R503 100
C503 100 10V
R501 33
R523 75 :RN
S503
OFF
75
ON
CN505 3p W-L
VO. 11-1
VO. 11-2
VO. 11-3
VIDEO LINE IN (X) OUT
VIDEO LINE IN (G) OUT
REG 12V IN
C501 0.01 :CCS
C502 47 16V
R502 2200
R505 22k
D302 1SS119
D301 1SS119
D304 1SS119
D303 1SS119
D305 1SS119
D306 1SS119
BUFF ON
S101
D401 1SS119
DIRECT
RY401
CN502 6p B-L
AFM. 310-1
AFM. 310-2
AFM. 310-3
AFM. 310-4
AFM. 310-5
AFM. 310-6
CH-1 AU LINE OUT (X) IN
CH-1 AU LINE OUT (G) IN
CH-2 AU LINE OUT (X) IN
CH-2 AU LINE OUT (G) IN
REG 12V IN
GND
CN510
CH-1 AU MONITOR OUT
CH-2 AU MONITOR OUT
CN504 5p W-L
RM. SS4-5
RM. SS4-4
RM. SS4-3
RM. SS4-2
RM. SS4-1
CH-1 AU-OUT OUT
CH-2 AU-OUT OUT
GND
L:STAND-BY OUT
L:AUTO-OFF OUT
CN511
CTRL P THROUGH OUT
CTRL P IN
AFM INPUT AMP
R101 3300
D101 RD6.2ESB
C101 100 10V
IC101 NJM4562M
R103 100k
C102 4.7 25V
S102 AUDIO INPUT SELECT
R102 47k
R106 47k
CN501 4p Y-L
AFM. 309-1
AFM. 309-2
AFM. 309-3
AFM. 309-4
CH-1 AFM LINE IN (X) OUT
CH-1 AFM LINE IN (G) OUT
CH-2 AFM LINE IN (X) OUT
CH-2 AFM LINE IN (G) OUT
CH-1 (L) AU IN
CH-1 (L) AU THROUGH OUT
R105 100k
C103 4.7 25V
R104 47k
R108 47k
CH-2 (R) AU IN
CH-2 (R) AU THROUGH OUT
IC201 LM2903S
R410 10k
IC202 LM2903S
R413 10k
R412 10k
R411 1M
R409 10k
R408 15k
R407 5600
R405 560k
R403 33k
R406 10k
C403 2200p :CA
D402 1SS119
C402 47 6.3V
R404 10k
CN503 6p Y-L
SS. 116-6
SS. 116-5
SS. 116-4
SS. 116-3
SS. 116-2
SS. 116-1
5V IN
CTRL P IN OUT
GND
L:AUTO-OFF IN
L:STAND-BY OUT
L:S-CONNECTOR OUT
LPF & SHAPER
WAVE SHAPER
AUTO-OFF OUT
AUTO-OFF THROUGH OUT
STAND-BY OUT
STAND BY THROUGH OUT
LAU INPUT AMP
IC102 NJM4562M
R107 100k
C104 4.7 25V
CN512 3p B-L
VR. 157-3
VR. 157-2
VR. 157-1
CH-1 LAU LINE IN (X) OUT
GND
CH-2 LAU LINE IN (X) OUT
C106 10 16V
C107 10 16V
R109 100k
C105 4.7 25V
101
102
201
202
1
2
3
4
5
A
B
C
D
E
F
G
H

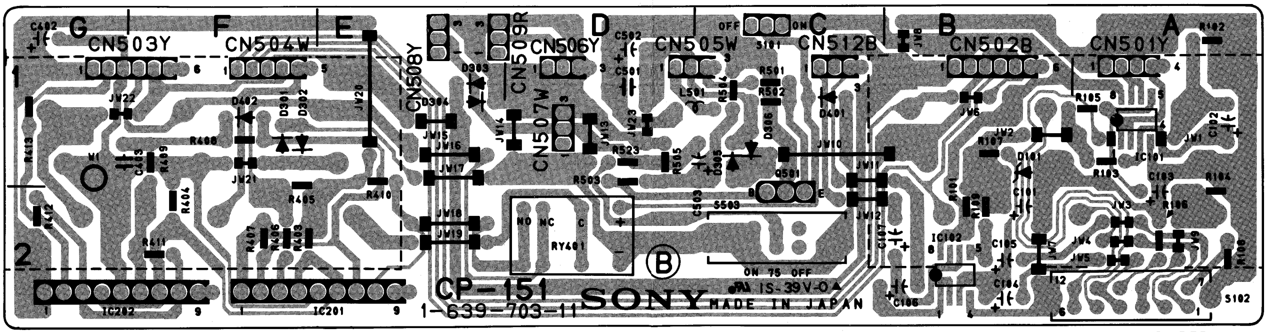
CP-151

1-639-703-11, 12, 13 (1)
SVO-960P


CN501Y
CN502B
CN512B
CN505W
S101
CN506Y
CN509R
CN507W
CN508Y
CN511
CN504W
CN503Y
CN510
S102
S503
RY401
IC201
IC202
A-6756-188-A
DIP
SONY
MADE IN JAPAN
LOT NO.
S NO.
CP-151
1-639-703-11
OFF 75 ON
ON S101 OFF
A B C D E F G 1 2

CP-151 —A SIDE—
1-639-703-11(1)
SVO-960P

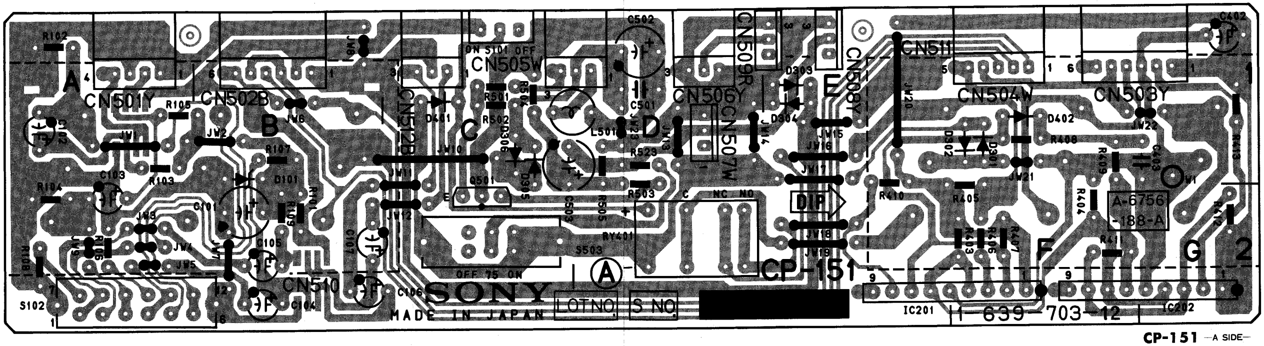
A Side is the same as COMPONENT Side


CN503Y
CN504W
CN508Y
CN509R
CN506Y
CN505W
S101
CN512B
CN502B
CN501Y
CN507W
RY401
S503
S102
IC202
IC201
IC101
IC102
CP-151
1-639-703-11
SONY
MADE IN JAPAN
IS-39V-0
ON 75 OFF
OFF ON
A B C D E F G 1 2

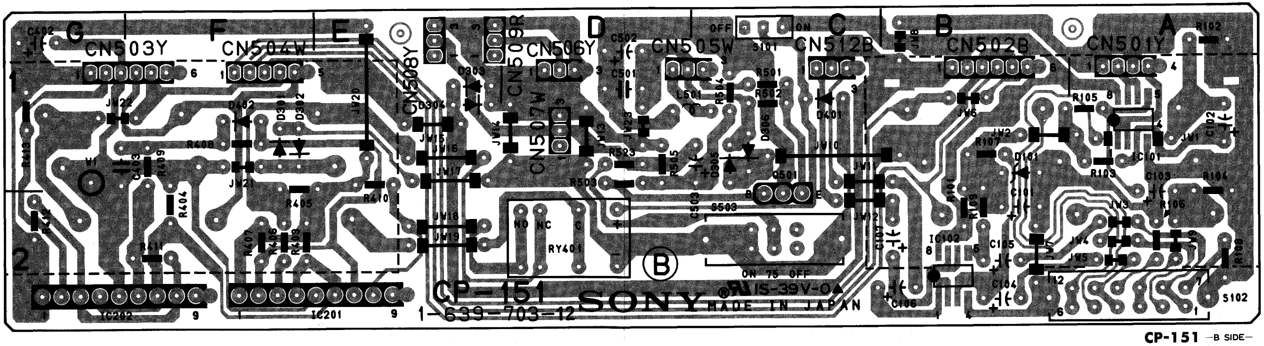
CP-151 —B SIDE—
1-639-703-11(1)
SVO-960P

B Side is the same as SOLDER Side

CP-151 ; CONNECTOR PANEL

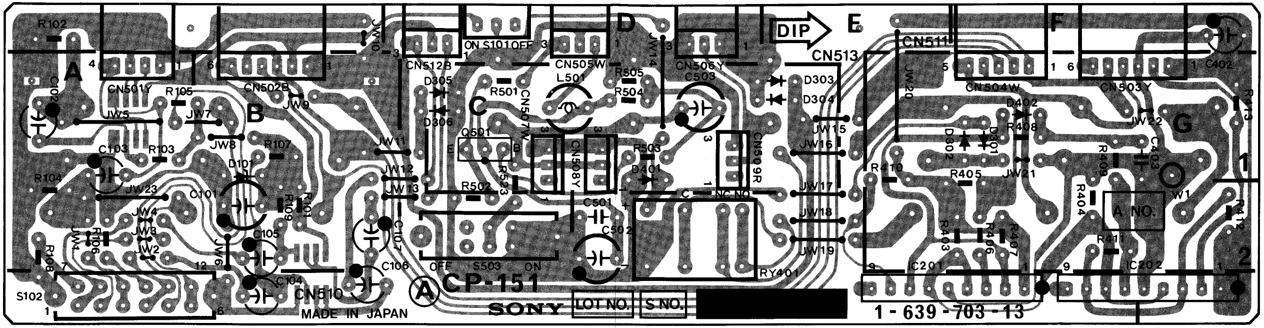

CN501Y
CN502B
CN512B
CN505W
CN506Y
CN507W
CN509R
CN508Y
CN511
CN504W
CN503Y
CN510
S102
S503
RY401
IC201
IC202
A-6756-188-A
CP-151
1-639-703-12
SONY
MADE IN JAPAN
LOT NO
S NO

CP-151 —A SIDE—
1-639-703-12 (1)
SVO-960P

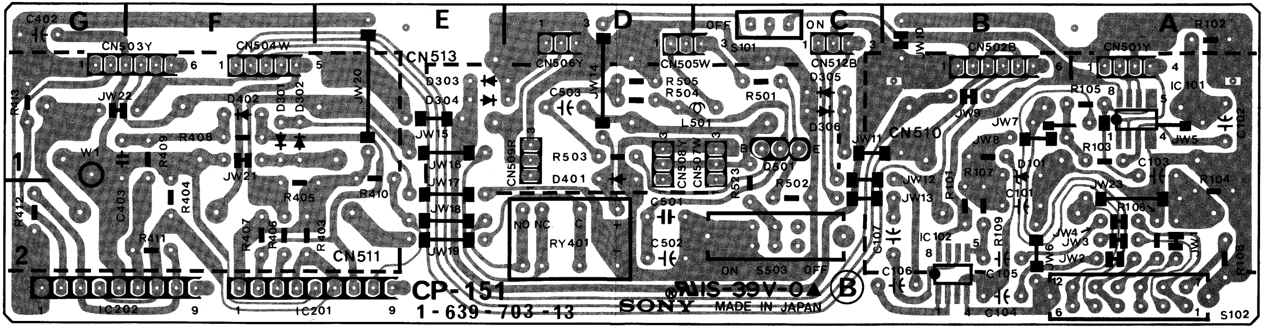

CN503Y
CN504W
CN508Y
CN509R
CN506Y
CN507W
CN505W
CN512B
CN502B
CN501Y
S101
S102
S503
RY401
IC101
IC102
IC201
IC202
CP-151
1-639-703-12
SONY
MADE IN JAPAN
IS-39V-0

CP-151 —B SIDE—
1-639-703-12 (1)
SVO-960P

CP-151 ; CONNECTOR PANEL

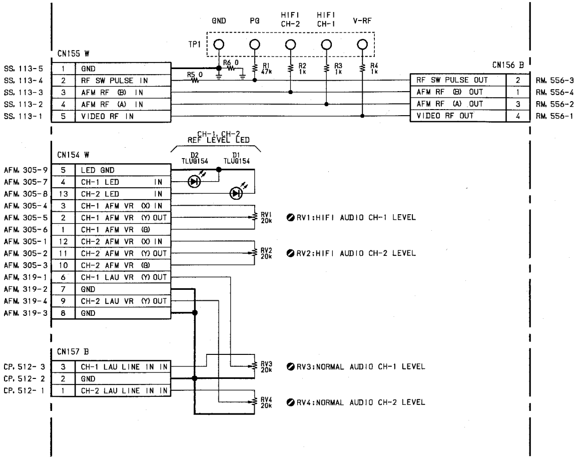

A
B
C
D
E
F
G
DIP
CN501Y
CN502B
CN512B
S101
ON
OFF
CN505W
CN506Y
CN513
CN511
CN504W
CN503Y
CN507W
CN508Y
CN509R
CN510
C101
C102
C103
C104
C105
C106
C107
C402
C403
C501
C502
C503
R101
R102
R103
R104
R105
R106
R107
R108
R109
R403
R404
R405
R406
R407
R408
R409
R410
R411
R412
R413
R501
R502
R503
R504
R505
R523
D101
D301
D302
D303
D304
D305
D306
D401
D402
Q501
L501
RY401
NC
NO
IC201
IC202
S102
S503
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW12
JW13
JW14
JW15
JW16
JW17
JW18
JW19
JW20
JW21
JW22
JW23
W1
A NO.
CP-151
SONY
LOT NO.
S NO.
MADE IN JAPAN
1-639-703-13

CP-151 —A SIDE—
1-639-703-13 (I)
SVO-960P


G
F
E
D
C
B
A
CN503Y
CN504W
CN513
CN506Y
CN505W
S101
OFF
ON
CN512B
CN502B
CN501Y
IC101
IC102
IC201
IC202
CN509R
CN508Y
CN507W
CN510
CN511
Q501
RY401
NO NC C
S503
S102
C101
C102
C103
C104
C105
C106
C107
C402
C403
C501
C502
C503
R101
R102
R103
R104
R105
R106
R107
R108
R109
R403
R404
R405
R406
R407
R408
R409
R410
R411
R412
R413
R501
R502
R503
R504
R505
R523
D101
D301
D302
D303
D304
D305
D306
D401
D402
L501
JW1
JW2
JW3
JW4
JW5
JW6
JW7
JW8
JW9
JW10
JW11
JW12
JW13
JW14
JW15
JW16
JW17
JW18
JW19
JW20
JW21
JW22
JW23
W1
CP-151
1-639-703-13
SONY
IS-39V-0
MADE IN JAPAN

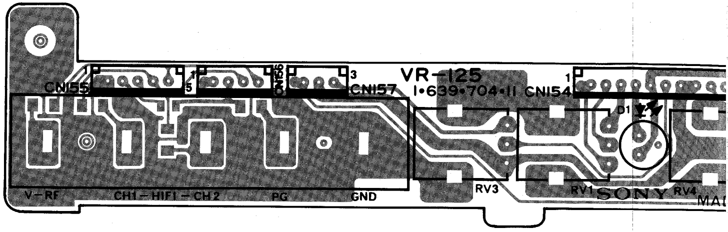
CP-151 —B SIDE—
1-639-703-13 (I)
SVO-960P

VR-125; AUDIO LEVEL CONTROL

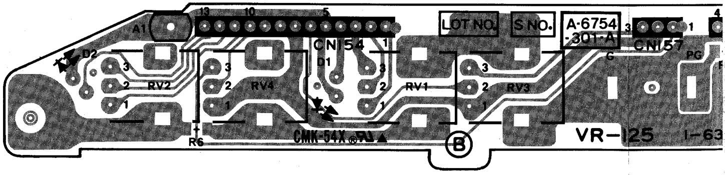

GND
PG
HIFI CH-2
HIFI CH-1
V-RF
TP1
CN155 W
R6 0
R5 0
R1 47k
R2 1k
R3 1k
R4 1k
CN156 B
SS. 113-5 | 1 | GND
SS. 113-4 | 2 | RF SW PULSE IN
SS. 113-3 | 3 | AFM RF (B) IN
SS. 113-2 | 4 | AFM RF (A) IN
SS. 113-1 | 5 | VIDEO RF IN
RF SW PULSE OUT | 2 | RM. 556-3
AFM RF (B) OUT | 1 | RM. 556-4
AFM RF (A) OUT | 3 | RM. 556-2
VIDEO RF OUT | 4 | RM. 556-1
CH-1, CH-2 REF LEVEL LED
D2 TLUG154
D1 TLUG154
CN154 W
AFM. 305-9 | 5 | LED GND
AFM. 305-7 | 4 | CH-1 LED IN
AFM. 305-8 | 13 | CH-2 LED IN
AFM. 305-4 | 3 | CH-1 AFM VR (X) IN
AFM. 305-5 | 2 | CH-1 AFM VR (Y) OUT
AFM. 305-6 | 1 | CH-1 AFM VR (G)
AFM. 305-1 | 12 | CH-2 AFM VR (X) IN
AFM. 305-2 | 11 | CH-2 AFM VR (Y) OUT
AFM. 305-3 | 10 | CH-2 AFM VR (G)
AFM. 319-1 | 6 | CH-1 LAU VR (Y) OUT
AFM. 319-2 | 7 | GND
AFM. 319-4 | 9 | CH-2 LAU VR (Y) OUT
AFM. 319-3 | 8 | GND
RV1 20k
RV2 20k
RV3 20k
RV4 20k
⊘RV1:HIFI AUDIO CH-1 LEVEL
⊘RV2:HIFI AUDIO CH-2 LEVEL
⊘RV3:NORMAL AUDIO CH-1 LEVEL
⊘RV4:NORMAL AUDIO CH-2 LEVEL
CN157 B
CP. 512- 3 | 3 | CH-1 LAU LINE IN IN
CP. 512- 2 | 2 | GND
CP. 512- 1 | 1 | CH-2 LAU LINE IN IN

VR-125

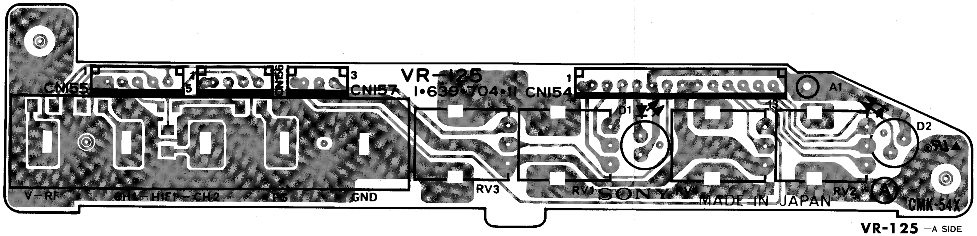
1-639-704-11(1)
SVO-960P


CN155
CN156
CN157
VR-125
1•639•704•11
CN154
D1
RV3
RV1
SONY
RV4
V-RF
CH1-HIFI-CH2
PG
GND
1
5
3

A Side is the same as COMPONENT Side

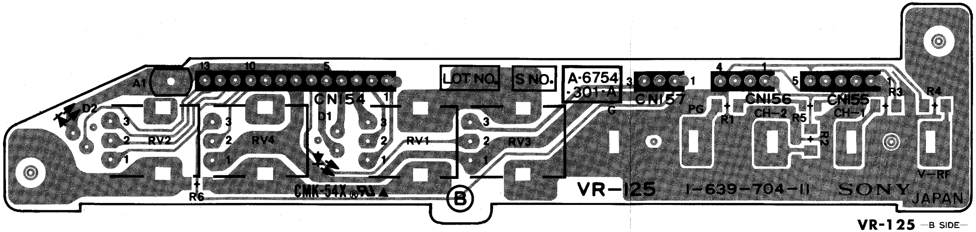

13
10
5
1
A1
D2
RV2
RV4
CN154
D1
RV1
RV3
LOT NO.
S NO.
A-6754-301-A
CN157
PG
R6
CMK-54X
B
VR-125
1-63

B Side is the same as SOLDER Side


CN155
1
5
1
6
3
CN157
VR-125
1•639•704•11
CN154
1
13
A1
D1
D2
V-RF
CH1 — HIFI — CH2
PG
GND
RV3
RV1
SONY
RV4
MADE IN JAPAN
RV2
A
CMK-54X

VR-125 —A SIDE—
1-639-704-11(1)
SVO-960P

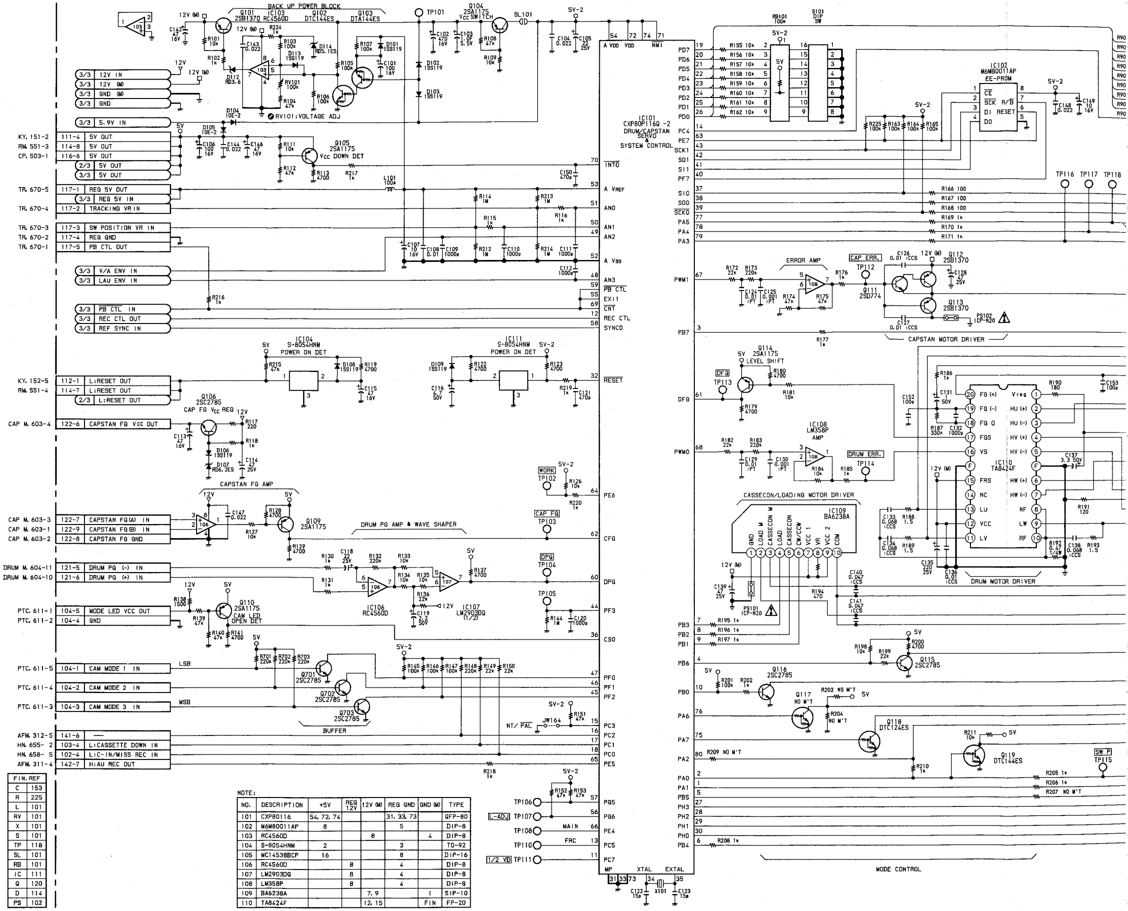
A Side is the same as COMPONENT Side


13
10
5
1
A1
D2
CN154
D1
LOT NO.
S NO.
A-6754
-301-A
3
1
CN157
4
1
CN156
5
1
CN155
G
PG
R1
CH-2
R5
CH-1
R3
R4
R2
3
2
1
RV2
RV4
RV1
RV3
R6
CMK-54X
B
VR-125
1-639-704-11
SONY
JAPAN
V-RF

VR-125 —B SIDE—
1-639-704-11(1)
SVO-960P

B Side is the same as SOLDER Side

SS-47A (1/3); DRUM/CAPSTAN SERVO CONTROL
SYSTEM CONTROL

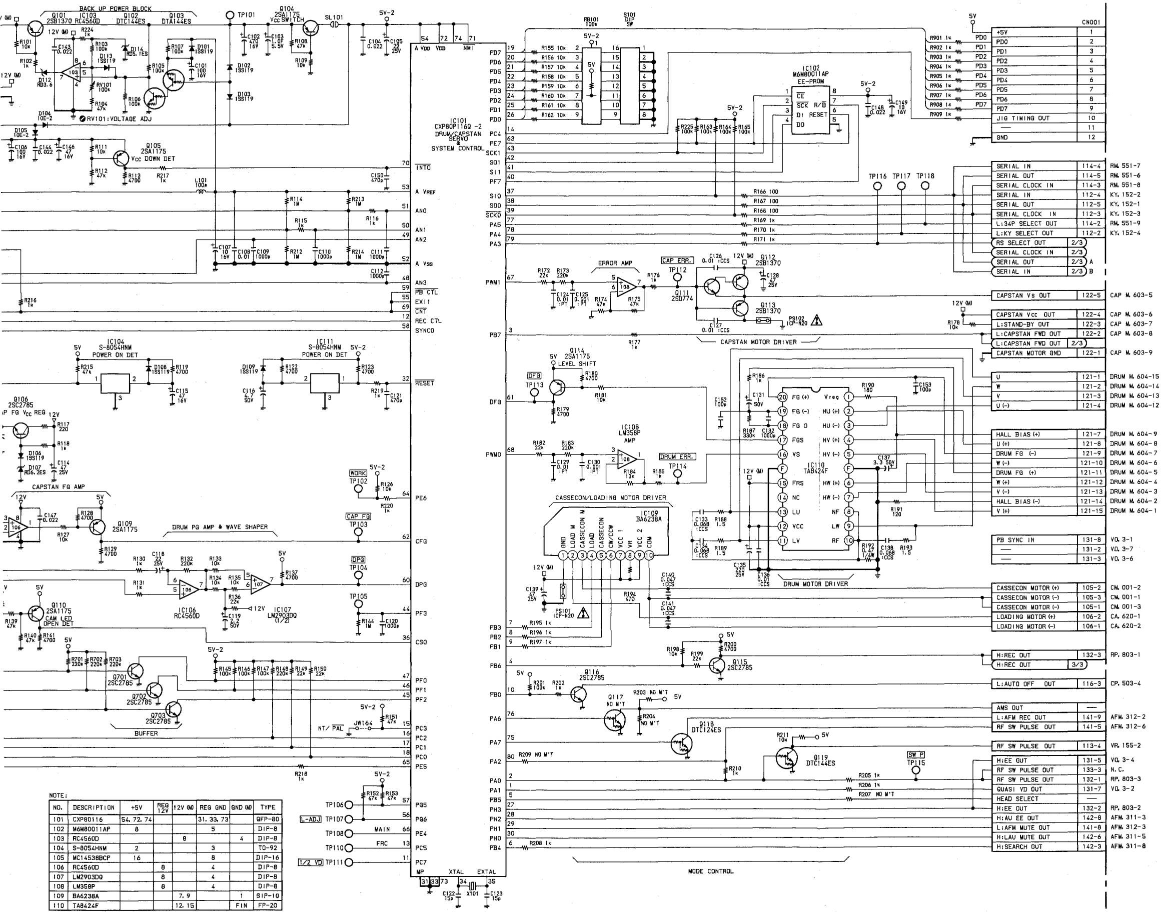

BACK UP POWER BLOCK
Q101 2SB1370
IC103 RC4560D
Q102 DTC144ES
Q103 DTA144ES
Q104 2SA1175 Vcc SWITCH
SL101
TP101
RV101:VOLTAGE ADJ
12V IN
12V (M)
GND (M)
GND
5.9V IN
5V OUT
Q105 2SA1175 Vcc DOWN DET
REG 5V OUT
REG 5V IN
TRACKING VR IN
SW POSITION VR IN
REG GND
PB CTL OUT
V/A ENV IN
LAU ENV IN
PB CTL IN
REC CTL OUT
REF SYNC IN
IC104 S-8054HNM POWER ON DET
IC111 S-8054HNM POWER ON DET
L:RESET OUT
Q106 2SC2785 CAP FG Vcc REG
CAPSTAN FG Vcc OUT
CAPSTAN FG AMP
CAPSTAN FG(A) IN
CAPSTAN FG(B) IN
CAPSTAN FG GND
Q109 2SA1175
DRUM PG AMP & WAVE SHAPER
DRUM PG (-) IN
DRUM PG (+) IN
IC106 RC4560D
IC107 LM2903DQ (1/2)
MODE LED VCC OUT
Q110 2SA1175 CAM LED OPEN DET
CAM MODE 1 IN
CAM MODE 2 IN
CAM MODE 3 IN
LSB
MSB
Q701 2SC2785
Q702 2SC2785
Q703 2SC2785
BUFFER
L:CASSETTE DOWN IN
L:C-IN/MISS REC IN
H:AU REC OUT
NT/PAL
WORK TP102
CAP FG TP103
DFG TP104
TP105
TP106
L-ADJ TP107
TP108
TP110
1/2 VD TP111
MAIN
FRC
IC101 CXP80P116Q-2 DRUM/CAPSTAN SERVO & SYSTEM CONTROL
A VDD
VDD
NMI
INT0
A VREF
AN0
AN1
AN2
A VSS
AN3
PB CTL
EXI1
CNT
REC CTL
SYNC0
RESET
PE6
CFG
DPG
PF3
CS0
PF0
PF1
PF2
PC3
PC2
PC1
PC0
PE5
PG5
PG6
PE4
PC5
PC7
MP
XTAL
EXTAL
X101
PD7
PD6
PD5
PD4
PD3
PD2
PD1
PD0
PC4
PE7
SCK1
SO1
SI1
PF7
SI0
SO0
SCK0
PA5
PA4
PA3
PWM1
PB7
DFG
PWM0
PB3
PB2
PB1
PB6
PB0
PA6
PA7
PA2
PA0
PA1
PB5
PH3
PH2
PH1
PH0
PB4
RB101 100k
S101 DIP SW
IC102 M6M80011AP EE-PROM
CE
SCK R/B
DI RESET
DO
TP116
TP117
TP118
ERROR AMP
CAP ERR. TP112
Q111 2SD774
Q112 2SB1370
Q113 2SB1370
PS102 ICP-N20
CAPSTAN MOTOR DRIVER
Q114 2SA1175 LEVEL SHIFT
DFG TP113
IC108 LM358P AMP
DRUM ERR. TP114
CASSECON/LOADING MOTOR DRIVER
IC109 BA6238A
GND
LOAD M
CASSECON M
LOAD
CASSECON
EN/CCW
VR
VCC 1
VCC 2
COM
PS101 ICP-N20
IC110 TA8424F
FG (+)
FG (-)
FG O
FGS
VS
FRS
NC
LU
VCC
LV
Vreg
HU (+)
HU (-)
HV (+)
HV (-)
HW (+)
HW (-)
NF
LW
RF
DRUM MOTOR DRIVER
Q115 2SC2785
Q116 2SC2785
Q117 NO M'T
Q118 DTC124ES
Q119 DTC144ES
SW P TP115
MODE CONTROL
KY. 151-2
RM. 551-3
CP. 503-1
TR. 670-5
TR. 670-4
TR. 670-3
TR. 670-2
TR. 670-1
KY. 152-5
RM. 551-4
CAP M. 603-4
CAP M. 603-3
CAP M. 603-1
CAP M. 603-2
DRUM M. 604-11
DRUM M. 604-10
PTC. 611-1
PTC. 611-2
PTC. 611-5
PTC. 611-4
PTC. 611-3
AFM. 312-5
HN. 655-2
HN. 658-5
AFM. 311-4

FIN. REF	
C	153
R	225
L	101
RV	101
X	101
S	101
TP	118
SL	101
RB	101
IC	111
Q	120
D	114
PS	102

NOTE:

NO.	DESCRIPTION	+5V	REG 12V	12V (M)	REG GND	GND (M)	TYPE
101	CXP80116	54, 72, 74			31, 33, 73		QFP-80
102	M6M80011AP	8			5		DIP-8
103	RC4560D			8		4	DIP-8
104	S-8054HNM	2			3		TO-92
105	MC14538BCP	16			8		DIP-16
106	RC4560D		8		4		DIP-8
107	LM2903DQ		8		4		DIP-8
108	LM358P		8		4		DIP-8
109	BA6238A			7, 9		1	SIP-10
110	TA8424F			12, 15		FIN	FP-20

NOTE:
The ⚠-marked components are critical to safety.
Replace only with same components as specified.


BACK UP POWER BLOCK
Q101 2SB1370
IC103 RC4560D
Q102 DTC144ES
Q103 DTA144ES
TP101
Q104 2SA1175 Vcc SWITCH
SL101
5V-2
RV101: VOLTAGE ADJ
Q105 2SA1175 Vcc DOWN DET
IC101 CXP80P116Q-2 DRUM/CAPSTAN SERVO & SYSTEM CONTROL
RB101 100k
S101 DIP SW
IC102 M6M80011AP EE-PROM
CE
SCK R/B
DI RESET
DO
CN001
+5V
PD0
PD1
PD2
PD3
PD4
PD5
PD6
PD7
JIG TIMING OUT
GND
TP116 TP117 TP118
SERIAL IN
SERIAL OUT
SERIAL CLOCK IN
L:34P SELECT OUT
L:KY SELECT OUT
RS SELECT OUT
RM. 551-7
KY. 152-2
ERROR AMP
CAP ERR.
TP112
Q111 2SD774
Q112 2SB1370
Q113 2SB1370
PS102 ICP-N20
CAPSTAN MOTOR DRIVER
CAPSTAN Vs OUT
CAPSTAN Vcc OUT
L:STAND-BY OUT
L:CAPSTAN FWD OUT
CAPSTAN MOTOR GND
CAP M. 603-5
Q114 2SA1175 LEVEL SHIFT
DFG
TP113
IC108 LM358P AMP
DRUM ERR.
TP114
IC110 TA8424F
DRUM MOTOR DRIVER
U
W
V
U (-)
HALL BIAS (+)
U (+)
DRUM FG (-)
W (-)
DRUM FG (+)
W (+)
V (-)
HALL BIAS (-)
V (+)
DRUM M. 604-15
CASSECON/LOADING MOTOR DRIVER
IC109 BA6238A
PS101 ICP-N20
PB SYNC IN
VO. 3-1
CASSECON MOTOR (+)
CASSECON MOTOR (-)
LOADING MOTOR (+)
LOADING MOTOR (-)
CM. 001-2
CA. 620-1
H:REC OUT
RP. 803-1
L:AUTO OFF OUT
CP. 503-4
AMS OUT
L:AFM REC OUT
RF SW PULSE OUT
AFM. 312-2
VR. 155-2
Q115 2SC2785
Q116 2SC2785
Q117 NO M'T
Q118 DTC124ES
Q119 DTC144ES
SW P
TP115
H:EE OUT
QUASI VD OUT
HEAD SELECT
H:AU EE OUT
L:AFM MUTE OUT
H:LAU MUTE OUT
H:SEARCH OUT
MODE CONTROL
IC104 S-8054HNM POWER ON DET
IC111 S-8054HNM POWER ON DET
Q106 2SC2785
CAPSTAN FG AMP
Q109 2SA1175
DRUM PG AMP & WAVE SHAPER
IC106 RC4560D
IC107 LM2903DQ (1/2)
WORK
TP102
CAP FG
TP103
DPG
TP104
TP105
Q110 2SA1175 CAM LED OPEN DET
Q701 2SC2785
Q702 2SC2785
Q703 2SC2785
BUFFER
NT/PAL
JW164
TP106
L-ADJ TP107
TP108 MAIN
TP110 FRC
1/2 VD TP111
X101
INTO
A VREF
AN0
AN1
AN2
A VSS
AN3
PB CTL
EXI1
CNT
REC CTL
SYNCO
RESET
PE6
CFG
DPG
PF3
CS0
PF0
PF1
PF2
PC3
PC2
PC1
PC0
PE5
PG5
PG6
PE4
PC5
PC7
MP
XTAL
EXTAL
PWM1
PB7
DFG
PWM0
PB3
PB2
PB1
PB6
PB0
PA6
PA7
PA2
PA0
PA1
PB5
PH3
PH2
PH1
PH0
PB4

NOTE;

NO.	DESCRIPTION	+5V	REG 12V	12V (M)	REG GND	GND (M)	TYPE
101	CXP80116	54, 72, 74			31, 33, 73		QFP-80
102	M6M80011AP	8			5		DIP-8
103	RC4560D			8		4	DIP-8
104	S-8054HNM	2			3		TO-92
105	MC14538BCP	16			8		DIP-16
106	RC4560D		8		4		DIP-8
107	LM2903DQ		8		4		DIP-8
108	LM358P		8		4		DIP-8
109	BA6238A			7, 9		1	SIP-10
110	TA8424F			12, 15		FIN	FP-20

SS-47A(1/3)

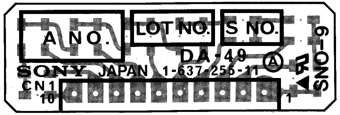
1-637-239-12, 13 (1)
SVO-960P

12-18

D | E | F | G | H | I | J | K | L

SS-47A (2/3); REEL SERVO CONTROL
DA-49; DA CONVERTOR

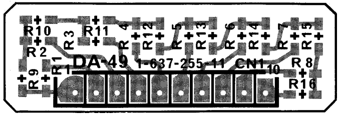
1


A NO.
LOT NO.
S NO.
DA-49
SONY JAPAN 1-637-255-11
CN1
10
1
SNO-9

DA-49 —A SIDE—
1-637-255-11(1)
SVO-960

2

A Side is the same as COMPONENT Side


R10
R3
R11
R4
R12
R5
R13
R6
R14
R7
R15
R2
R9
R1
DA-49
1-637-255-11
CN1
10
R8
R16

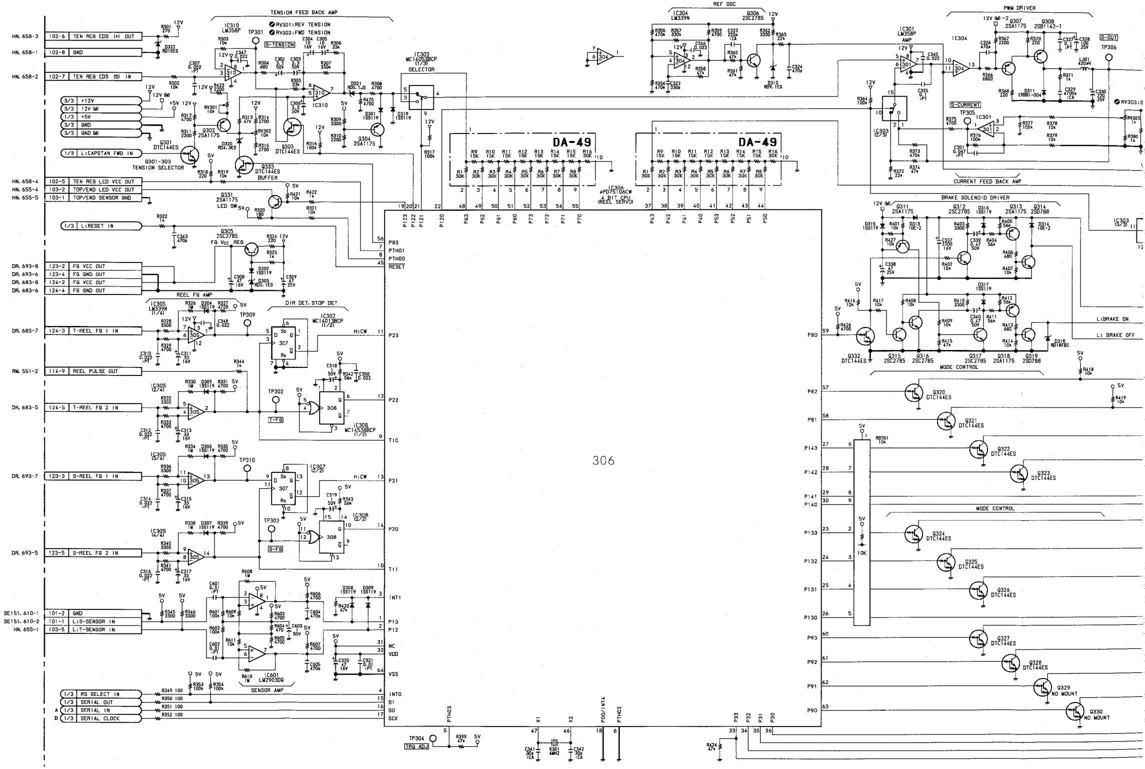
3

DA-49 —B SIDE—
1-637-255-11(1)
SVO-960

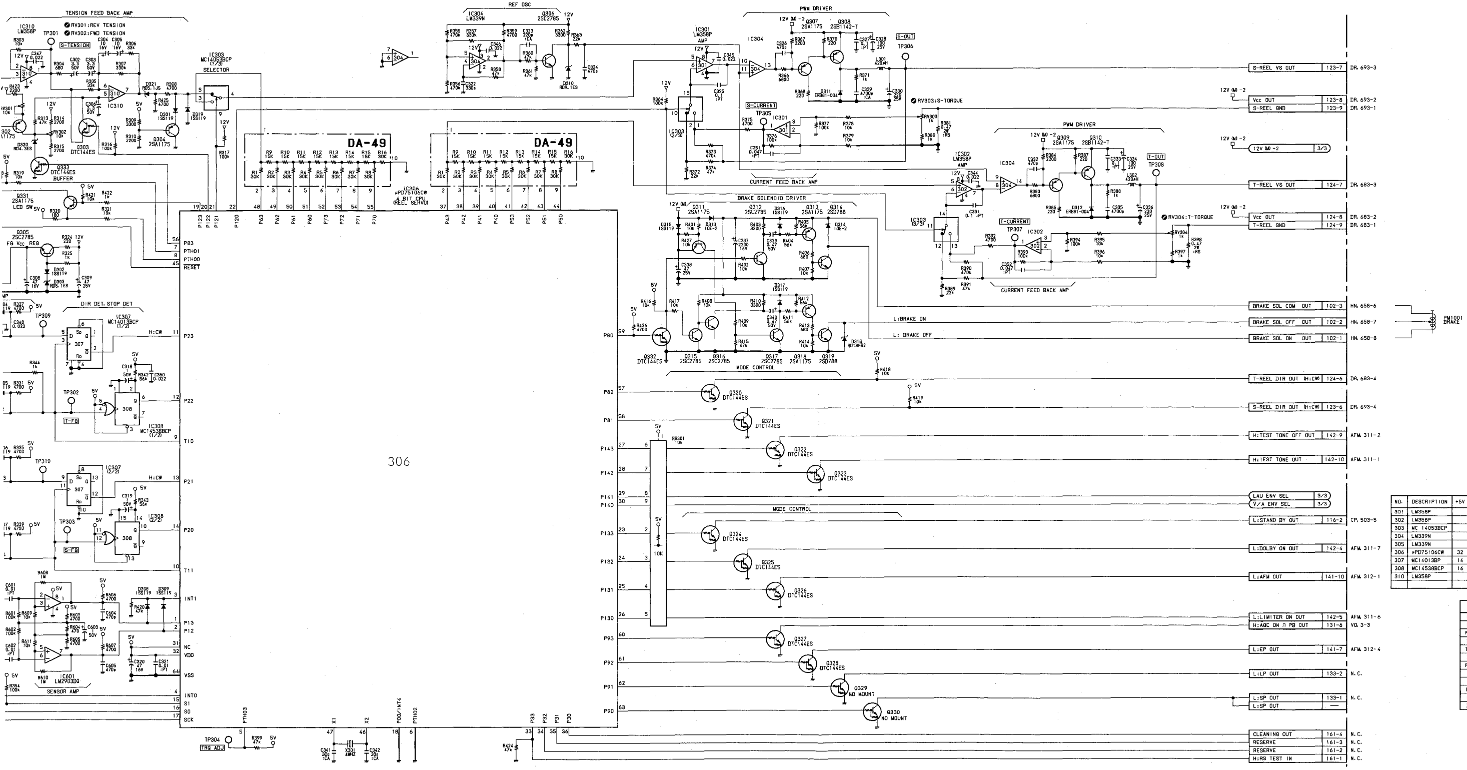
B Side is the same as SOLDER Side

4

5


TENSION FEED BACK AMP
IC310 LM358P
RV301:REV TENSION
RV302:FWD TENSION
S-TENSION
TP301
IC303 MC14053BCP (1/3) SELECTOR
102-6 TEN REG CDS (+) OUT
102-8 GND
102-7 TEN REG CDS (S) IN
3/3 +12V
3/3 12V (M)
1/3 +5V
3/3 GND
3/3 GND (M)
1/3 L:CAPSTAN FWD IN
Q301-303 TENSION SELECTOR
Q333 DTC144ES BUFFER
102-5 TEN REG LED VCC OUT
103-2 TOP/END LED VCC OUT
103-1 TOP/END SENSOR GND
Q331 2SA1175 LED SW
1/3 L:RESET IN
Q305 2SC2785 FG Vcc REG
123-2 FG VCC OUT
123-4 FG GND OUT
124-2 FG VCC OUT
124-4 FG GND OUT
REEL FG AMP
IC305 LM339N
DIR DET, STOP DET
IC307 MC14013BCP
124-3 T-REEL FG 1 IN
114-9 REEL PULSE OUT
124-5 T-REEL FG 2 IN
TP302
T-FG
IC308 MC14538BCP
H:CW
TP309
TP310
123-3 S-REEL FG 1 IN
123-5 S-REEL FG 2 IN
TP303
S-FG
101-2 GND
101-1 L:S-SENSOR IN
103-5 L:T-SENSOR IN
IC601 LM2903DQ
SENSOR AMP
1/3 RS SELECT IN
1/3 SERIAL OUT
1/3 SERIAL IN
1/3 SERIAL CLOCK
TP304 TRQ ADJ
X301 4MHZ
DA-49
IC306 μPD75106CW 4 BIT CPU (REEL SERVO)
306
REF OSC
IC304 LM339N
Q306 2SC2785
IC301 LM358P AMP
PWM DRIVER
Q307 2SA1175
Q308 2SB1142-1
L301 420μH
S-OUT
TP306
S-CURRENT
TP305
CURRENT FEED BACK AMP
BRAKE SOLENOID DRIVER
Q311 2SA1175
Q312 2SC2785
Q313 2SA1175
Q314 2SD788
MODE CONTROL
Q332 DTC144ES
Q315 2SC2785
Q316 2SC2785
Q317 2SC2785
Q318 2SA1175
Q319 2SD788
L:BRAKE ON
L:BRAKE OFF
Q320 DTC144ES
Q321 DTC144ES
Q322 DTC144ES
Q323 DTC144ES
Q324 DTC144ES
Q325 DTC144ES
Q326 DTC144ES
Q327 DTC144ES
Q328 DTC144ES
Q329 NO MOUNT
Q330 NO MOUNT
RV303
P23
P22
P21
P20
T10
T11
INT1
P13
P12
NC
VDD
VSS
INT0
SI
SO
SCK
P83
PTH01
PTH00
RESET
P80
P82
P81
P143
P142
P141
P140
P133
P132
P131
P130
P93
P92
P91
P90

A | B | C | D | E | F | G | H


TENSION FEED BACK AMP
IC310 LM358P
TP301
RV301:REV TENSION
RV302:FWD TENSION
S-TENSION
IC303 MC14053BCP (1/3) SELECTOR
REF OSC
IC304 LM339N
Q306 2SC2785
PWM DRIVER
IC301 LM358P AMP
Q307 2SA1175
Q308 2SB1142-T
S-OUT
TP306
S-CURRENT
TP305
RV303:S-TORQUE
CURRENT FEED BACK AMP
DA-49
DA-49
IC306 μPD75106CW 4 BIT CPU (REEL SERVO)
306
BRAKE SOLENOID DRIVER
Q311 2SA1175
Q312 2SC2785
Q313 2SA1175
Q314 2SD788
MODE CONTROL
Q332 DTC144ES
Q315 2SC2785
Q316 2SC2785
Q317 2SC2785
Q318 2SA1175
Q319 2SD788
IC302 LM358P AMP
Q309 2SA1175
Q310 2SB1142-T
T-OUT
TP308
T-CURRENT
TP307
RV304:T-TORQUE
L:BRAKE ON
L: BRAKE OFF
Q320 DTC144ES
Q321 DTC144ES
Q322 DTC144ES
Q323 DTC144ES
RB301 10k
Q324 DTC144ES
Q325 DTC144ES
Q326 DTC144ES
Q327 DTC144ES
Q328 DTC144ES
Q329 NO MOUNT
Q330 NO MOUNT
X301 4MHZ
TP304
TRQ ADJ
Q305 2SC2785 FG Vcc REG
Q333 DTC144ES BUFFER
Q331 2SA1175 LED SW
DIR DET. STOP DET
IC307 MC14013BCP (1/2)
IC308 MC14538BCP (1/2)
IC307 (2/2)
IC308 (2/2)
TP309
TP302
T-FG
TP310
TP303
S-FG
IC601 LM2903DQ
SENSOR AMP
H:CW
S-REEL VS OUT | 123-7 | DR. 693-3
12V (M) -2
Vcc OUT | 123-8 | DR. 693-2
S-REEL GND | 123-9 | DR. 693-1
12V (M) -2 | 3/3
T-REEL VS OUT | 124-7 | DR. 683-3
Vcc OUT | 124-8 | DR. 683-2
T-REEL GND | 124-9 | DR. 683-1
BRAKE SOL COM OUT | 102-3 | HN. 658-6
BRAKE SOL OFF OUT | 102-2 | HN. 658-7
BRAKE SOL ON OUT | 102-1 | HN. 658-8
PM1001 BRAKE
T-REEL DIR OUT (H:CW) | 124-6 | DR. 683-4
S-REEL DIR OUT (H:CW) | 123-6 | DR. 693-4
H:TEST TONE OFF OUT | 142-9 | AFM. 311-2
H:TEST TONE OUT | 142-10 | AFM. 311-1
LAU ENV SEL | 3/3
V/A ENV SEL | 3/3
L:STAND BY OUT | 116-2 | CP. 503-5
L:DOLBY ON OUT | 142-4 | AFM. 311-7
L:AFM OUT | 141-10 | AFM. 312-1
L:LIMITER ON OUT | 142-5 | AFM. 311-6
H:AGC ON ∩ PB OUT | 131-6 | VO. 3-3
L:EP OUT | 141-7 | AFM. 312-4
L:LP OUT | 133-2 | N.C.
L:SP OUT | 133-1 | N.C.
L:SP OUT | —
CLEANING OUT | 161-4 | N.C.
RESERVE | 161-3 | N.C.
RESERVE | 161-2 | N.C.
H:RS TEST IN | 161-1 | N.C.

NO.	DESCRIPTION	+5V	+12V	GND
301	LM358P		8	4
302	LM358P		8	4
303	MC 14053BCP		16	6, 7, 8
304	LM339N		3	12
305	LM339N		3	12
306	μPD75106CW	32		64
307	MC14013BP	14		7
308	MC14538BCP	16		8
310	LM358P		8	4

FIN. REF		
C	350	
R	399	423
RV	304	
L	302	
TP	310	
X	301	
RB	301	
IC	310	
Q	333	
D	320	

SS-47A(2/3)

1-637-239-12, 13 (1)
SVO-960P

SS-47A (3/3) ; VIDEO/AUDIO ENVELOPE DETECT CTL HEAD AMP

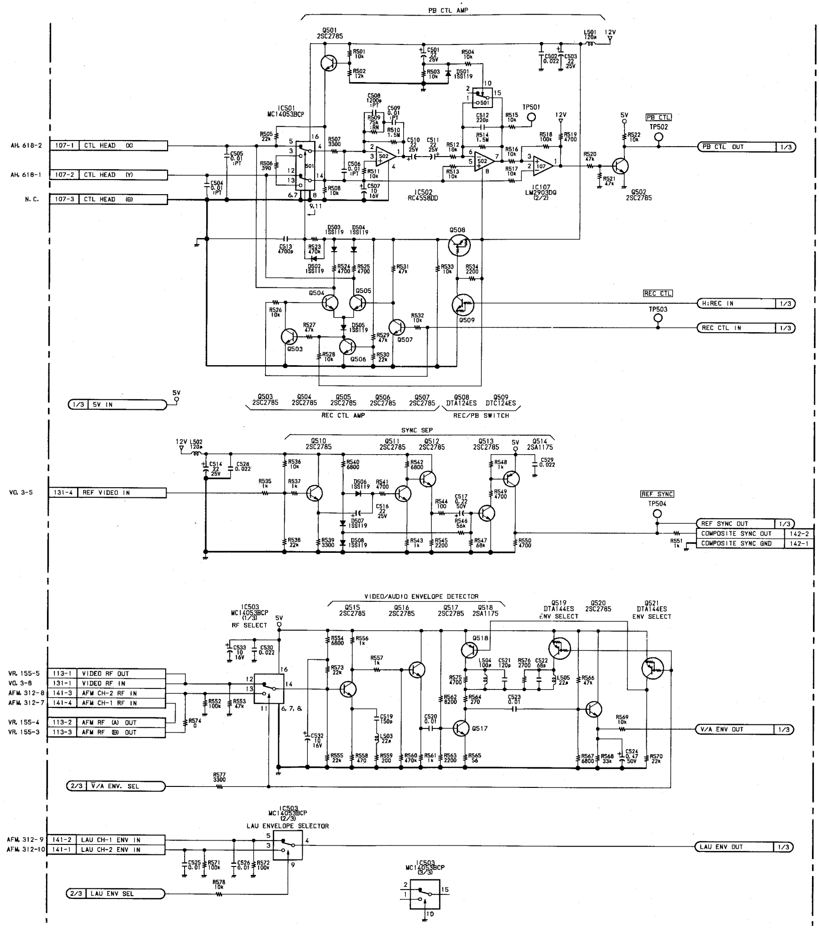
1

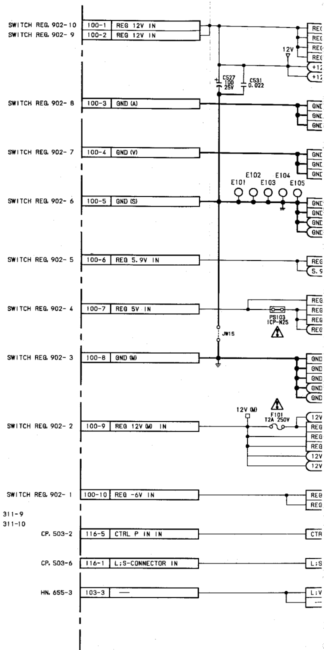
2

3

4

5

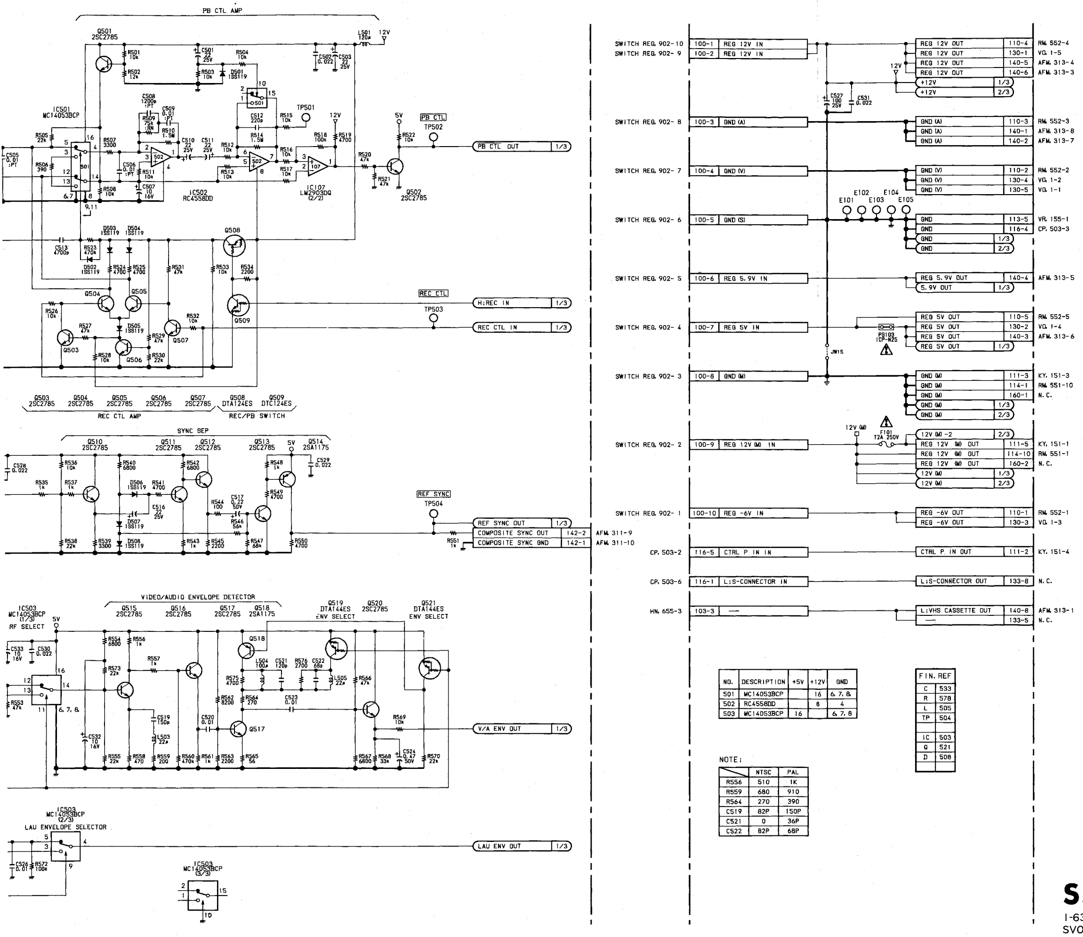

PB CTL AMP
Q501 2SC2785
IC501 MC14053BCP
AH. 618-2
107-1 CTL HEAD (X)
AH. 618-1
107-2 CTL HEAD (Y)
N. C.
107-3 CTL HEAD (G)
IC502 RC4558DD
IC107 LM2903DQ (2/2)
L501 120μ
12V
5V
TP501
PB CTL
TP502
PB CTL OUT 1/3
Q502 2SC2785
Q508
Q509
REC CTL
TP503
H:REC IN 1/3
REC CTL IN 1/3
1/3 5V IN
Q503 2SC2785
Q504 2SC2785
Q505 2SC2785
Q506 2SC2785
Q507 2SC2785
Q508 DTA124ES
Q509 DTC124ES
REC CTL AMP
REC/PB SWITCH
SYNC SEP
Q510 2SC2785
Q511 2SC2785
Q512 2SC2785
Q513 2SC2785
Q514 2SA1175
12V L502 120μ
VQ. 3-5
131-4 REF VIDEO IN
REF SYNC
TP504
REF SYNC OUT 1/3
COMPOSITE SYNC OUT 142-2
COMPOSITE SYNC GND 142-1
AFM. 311-9
AFM. 311-10
VIDEO/AUDIO ENVELOPE DETECTOR
Q515 2SC2785
Q516 2SC2785
Q517 2SC2785
Q518 2SA1175
Q519 DTA144ES ENV SELECT
Q520 2SC2785
Q521 DTA144ES ENV SELECT
IC503 MC14053BCP (1/3) RF SELECT
VR. 155-5 113-1 VIDEO RF OUT
VQ. 3-8 131-1 VIDEO RF IN
AFM. 312-8 141-3 AFM CH-2 RF IN
AFM. 312-7 141-4 AFM CH-1 RF IN
VR. 155-4 113-2 AFM RF (A) OUT
VR. 155-3 113-3 AFM RF (B) OUT
V/A ENV OUT 1/3
2/3 V/A ENV. SEL
IC503 MC14053BCP (2/3) LAU ENVELOPE SELECTOR
AFM. 312-9 141-2 LAU CH-1 ENV IN
AFM. 312-10 141-1 LAU CH-2 ENV IN
LAU ENV OUT 1/3
2/3 LAU ENV SEL
IC503 MC14053BCP (3/3)


SWITCH REG. 902-10 100-1 REG 12V IN
SWITCH REG. 902-9 100-2 REG 12V IN
SWITCH REG. 902-8 100-3 GND (A)
SWITCH REG. 902-7 100-4 GND (V)
SWITCH REG. 902-6 100-5 GND (S)
SWITCH REG. 902-5 100-6 REG 5.9V IN
SWITCH REG. 902-4 100-7 REG 5V IN
SWITCH REG. 902-3 100-8 GND (W)
SWITCH REG. 902-2 100-9 REG 12V (W) IN
SWITCH REG. 902-1 100-10 REG -6V IN
CP. 503-2 116-5 CTRL P IN IN
CP. 503-6 116-1 L:S-CONNECTOR IN
HN. 655-3 103-3 —
E101 E102 E103 E104 E105
PS103 ICP-N25
F101 T2A 250V
12V (W)
JW15

NO.	DESCRIPTION	+5V	+12V	GND
501	MC14053BCP		16	6, 7, 8,
502	RC4558DD		8	4
503	MC14053BCP	16		6, 7, 8

NOTE:

	NTSC	PAL
R556	510	1K
R559	680	910
R564	270	390
C519	82P	150P
C521	0	36P
C522	82P	68P


PB CTL AMP
Q501 2SC2785
IC501 MC14053BCP
IC502 RC4558DD
IC107 LM2903DQ (2/2)
Q502 2SC2785
L501 120μ
12V
5V
TP501
TP502
PB CTL
PB CTL OUT 1/3
Q508
Q509
REC CTL
TP503
H:REC IN 1/3
REC CTL IN 1/3
Q503 2SC2785
Q504 2SC2785
Q505 2SC2785
Q506 2SC2785
Q507 2SC2785
Q508 DTA124ES
Q509 DTC124ES
REC CTL AMP
REC/PB SWITCH
SYNC SEP
Q510 2SC2785
Q511 2SC2785
Q512 2SC2785
Q513 2SC2785
Q514 2SA1175
REF SYNC
TP504
REF SYNC OUT 1/3
COMPOSITE SYNC OUT 142-2
COMPOSITE SYNC GND 142-1
AFM. 311-9
AFM. 311-10
VIDEO/AUDIO ENVELOPE DETECTOR
IC503 MC14053BCP (1/3)
RF SELECT
Q515 2SC2785
Q516 2SC2785
Q517 2SC2785
Q518 2SA1175
Q519 DTA144ES ENV SELECT
Q520 2SC2785
Q521 DTA144ES ENV SELECT
V/A ENV OUT 1/3
IC503 MC14053BCP (2/3)
LAU ENVELOPE SELECTOR
LAU ENV OUT 1/3
IC503 MC14053BCP (3/3)
SWITCH REG. 902-10 100-1 REG 12V IN
SWITCH REG. 902- 9 100-2 REG 12V IN
REG 12V OUT 110-4 RM. 552-4
REG 12V OUT 130-1 VO. 1-5
REG 12V OUT 140-5 AFM. 313-4
REG 12V OUT 140-6 AFM. 313-3
+12V 1/3
+12V 2/3
C527 100 25V
C531 0.022
SWITCH REG. 902- 8 100-3 GND (A)
GND (A) 110-3 RM. 552-3
GND (A) 140-1 AFM. 313-8
GND (A) 140-2 AFM. 313-7
SWITCH REG. 902- 7 100-4 GND (V)
GND (V) 110-2 RM. 552-2
GND (V) 130-4 VO. 1-2
GND (V) 130-5 VO. 1-1
E101 E102 E103 E104 E105
SWITCH REG. 902- 6 100-5 GND (S)
GND 113-5 VR. 155-1
GND 116-4 CP. 503-3
GND 1/3
GND 2/3
SWITCH REG. 902- 5 100-6 REG 5.9V IN
REG 5.9V OUT 140-4 AFM. 313-5
5.9V OUT 1/3
SWITCH REG. 902- 4 100-7 REG 5V IN
REG 5V OUT 110-5 RM. 552-5
REG 5V OUT 130-2 VO. 1-4
REG 5V OUT 140-3 AFM. 313-6
REG 5V OUT 1/3
PS103 ICP-N25
JW15
SWITCH REG. 902- 3 100-8 GND (M)
GND (M) 111-3 KY. 151-3
GND (M) 114-1 RM. 551-10
GND (M) 160-1 N. C.
GND (M) 1/3
GND (M) 2/3
12V (M)
F101 T2A 250V
SWITCH REG. 902- 2 100-9 REG 12V (M) IN
12V (M) -2 2/3
REG 12V (M) OUT 111-5 KY. 151-1
REG 12V (M) OUT 114-10 RM. 551-1
REG 12V (M) OUT 160-2 N. C.
12V (M) 1/3
12V (M) 2/3
SWITCH REG. 902- 1 100-10 REG -6V IN
REG -6V OUT 110-1 RM. 552-1
REG -6V OUT 130-3 VO. 1-3
CP. 503-2 116-5 CTRL P IN IN
CTRL P. IN OUT 111-2 KY. 151-4
CP. 503-6 116-1 L;S-CONNECTOR IN
L;S-CONNECTOR OUT 133-8 N. C.
HN. 655-3 103-3 —
L;VHS CASSETTE OUT 140-8 AFM. 313-1
— 133-5 N. C.

NO.	DESCRIPTION	+5V	+12V	GND
501	MC14053BCP		16	6, 7, 8,
502	RC4558DD		8	4
503	MC14053BCP	16		6, 7, 8

FIN. REF	
C	533
R	578
L	505
TP	504
IC	503
Q	521
D	508

NOTE:

	NTSC	PAL
R556	510	1K
R559	680	910
R564	270	390
C519	82P	150P
C521	0	36P
C522	82P	68P

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.

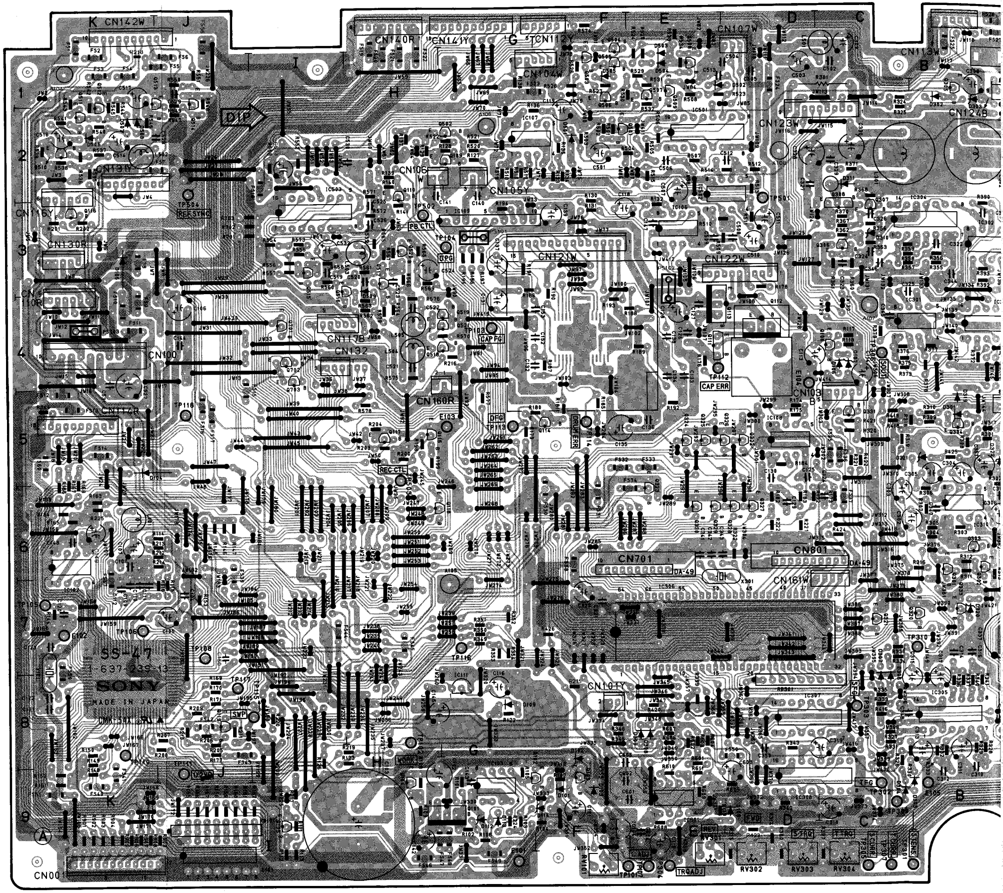
SS-47A(3/3)

1-637-239-12, 13 (1)
SVO-960P

SS-47A ; SERVO/SYSTEM CONTROL

SS-47A (1-637-239-13) A SIDE

CN100	K-4	D501	F-2	Q116	K-3	RB101	I-9
CN101	F-8	D502	D-1	Q118	G-6	RB301	D-8
CN102	A-5	D503	E-1	Q119	J-8		
CN103	D-5	D504	E-1	Q301	B-7	RV101	F-9
CN104	G-1	D505	F-1	Q302	B-6	RV301	E-9
CN105	G-2	D506	K-2	Q303	B-6	RV302	D-9
CN106	H-2	D507	K-2	Q304	B-5	RV303	D-9
CN107	D-1	D508	K-2	Q305	B-1	RV304	C-9
CN110	K-3			Q306	C-3		
CN111	A-1	E101	G-9	Q307	C-3	S101	I-9
CN112	F-1	E102	K-7	Q308	C-2		
CN113	C-1	E103	H-5	Q309	A-3	TP101	F-9
CN114	K-5	E104	D-4	Q310	A-3	TP102	H-8
CN116	K-3	E105	B-9	Q311	A-8	TP103	G-4
CN117	I-4			Q312	A-7	TP104	H-3
CN121	F-3	F101	A-1	Q313	A-5	TP105	K-7
CN122	E-3			Q314	A-5	TP106	K-7
CN123	D-2	IC101	⋆K-7	Q315	A-7	TP107	E-9
CN124	B-2	IC102	K-7	Q316	A-7	TP108	J-7
CN130	K-3	IC103	G-8	Q317	A-6	TP110	K-8
CN131	K-2	IC104	E-9	Q318	A-6	TP111	J-8
CN132	I-4	IC106	E-3	Q319	A-6	TP112	E-4
CN140	H-1	IC107	G-2	Q320	C-7	TP113	G-5
CN141	H-1	IC108	D-5	Q321	C-7	TP114	F-5
CN142	K-1	IC109	G-3	Q322	D-5	TP115	I-8
CN160	H-5	IC110	⋆F-4	Q323	E-5	TP116	G-7
CN161	D-7	IC111	G-8	Q324	E-5	TP117	J-8
		IC301	B-4	Q325	E-5	TP118	J-5
D101	F-9	IC302	B-3	Q326	D-5	TP301	C-9
D102	F-8	IC303	B-4	Q327	D-6	TP302	C-9
D103	F-9	IC304	B-3	Q328	D-6	TP303	C-8
D104	K-5	IC305	B-8	Q331	C-5	TP304	E-9
D105	K-3	IC306	E-7	Q332	A-8	TP305	C-9
D106	C-4	IC307	D-8	Q333	B-7	TP306	C-4
D107	C-4	IC308	D-9	Q501	E-2	TP307	C-9
D108	D-9	IC310	B-6	Q502	G-2	TP308	A-3
D109	G-8	IC501	E-2	Q503	F-1	TP309	C-9
D112	G-9	IC502	E-2	Q504	F-1	TP310	C-7
D113	G-9	IC503	I-2	Q505	F-1	TP501	D-3
D114	F-9	IC601	E-9	Q506	F-1	TP502	H-3
D301	B-5			Q507	E-1	TP503	H-5
D302	B-2	PS101	G-3	Q508	E-1	TP504	J-3
D303	B-2	PS102	E-3	Q509	E-1		
D308	E-8	PS103	K-4	Q510	K-2	X101	K-7
D309	E-8			Q511	K-1	X301	D-7
D310	C-3	Q101	G-9	Q512	K-1		
D311	C-2	Q102	G-8	Q513	J-1		
D312	A-2	Q103	F-9	Q514	J-2		
D313	A-8	Q104	H-9	Q515	I-3		
D314	A-5	Q105	I-9	Q516	I-3		
D315	A-8	Q106	C-4	Q517	H-3		
D316	A-6	Q109	G-2	Q518	H-4		
D317	A-6	Q110	H-2	Q519	G-4		
D318	A-5	Q111	E-4	Q520	H-3		
D319	B-5	Q112	D-4	Q521	G-4		
D320	B-7	Q113	D-4	Q701	I-4		
D321	C-5	Q114	F-5	Q702	I-4		
D322	B-5	Q115	H-5	Q703	I-4		


K
J
I
H
G
F
E
D
C
B
A
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3
4
5
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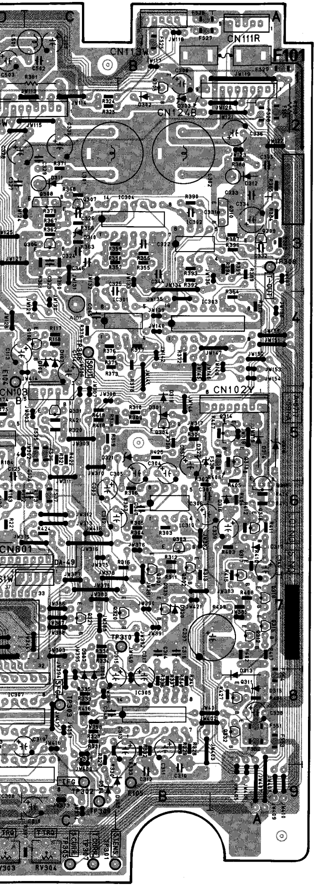
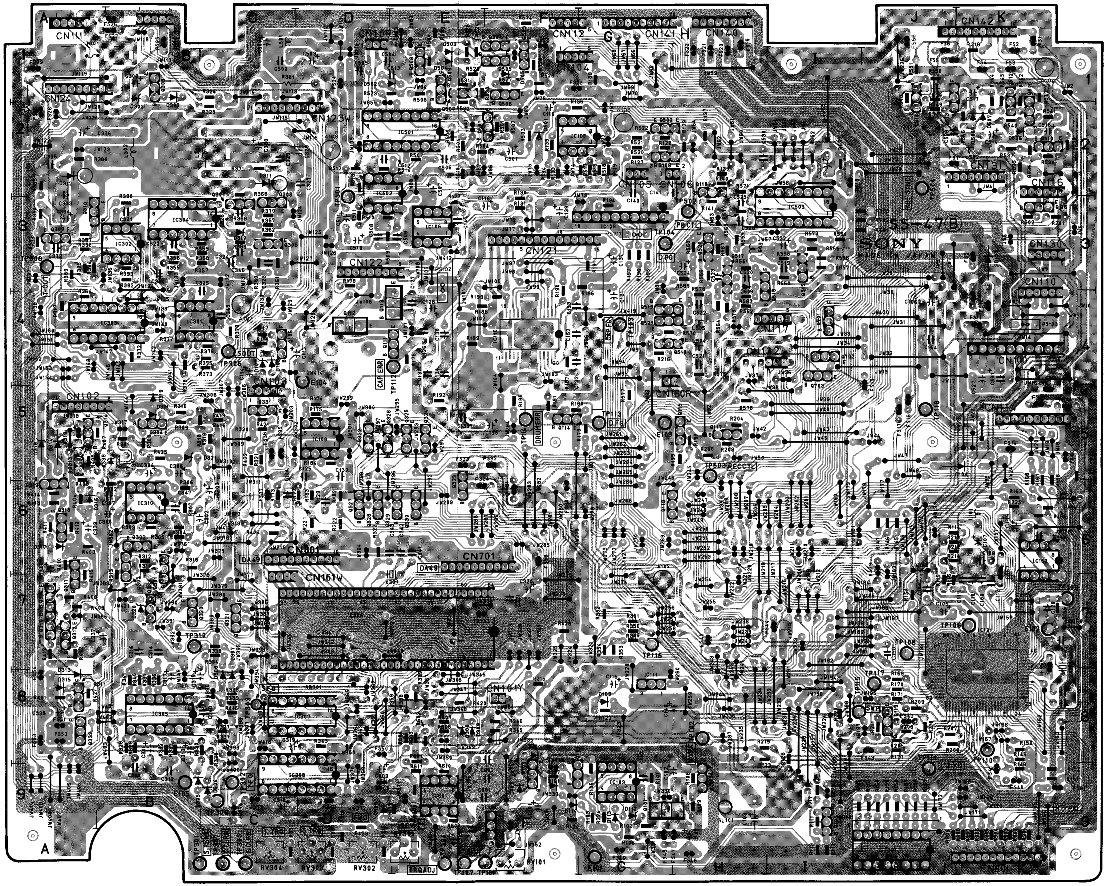
8
9
CN142W
CN140R
CN141Y
CN112Y
CN107W
CN113W
CN104W
CN131Y
CN106
CN105Y
CN123W
CN124B
CN116Y
CN130R
CN121W
CN122W
CN110R
CN117B
CN132
CN100
CN114R
CN160R
CN103
CN701
CN801
CN161W
CN101Y
CN001
DIP
REF STRG
PB CTL
CAP FG
CAP ERR
DRUM ERR
REC CTL
SWP
TRQ ADJ
SS-47
1-637-239-13
SONY
MADE IN JAPAN
RV101
RV302
RV303
RV304
TP101
TP102
TP108
TP112
TP116
TP118
TP501
TP502
TP302
TP310
IC305
IC306
DA-49



SS-47A —A SIDE—
1-637-239-13 (1)
SVO-960P



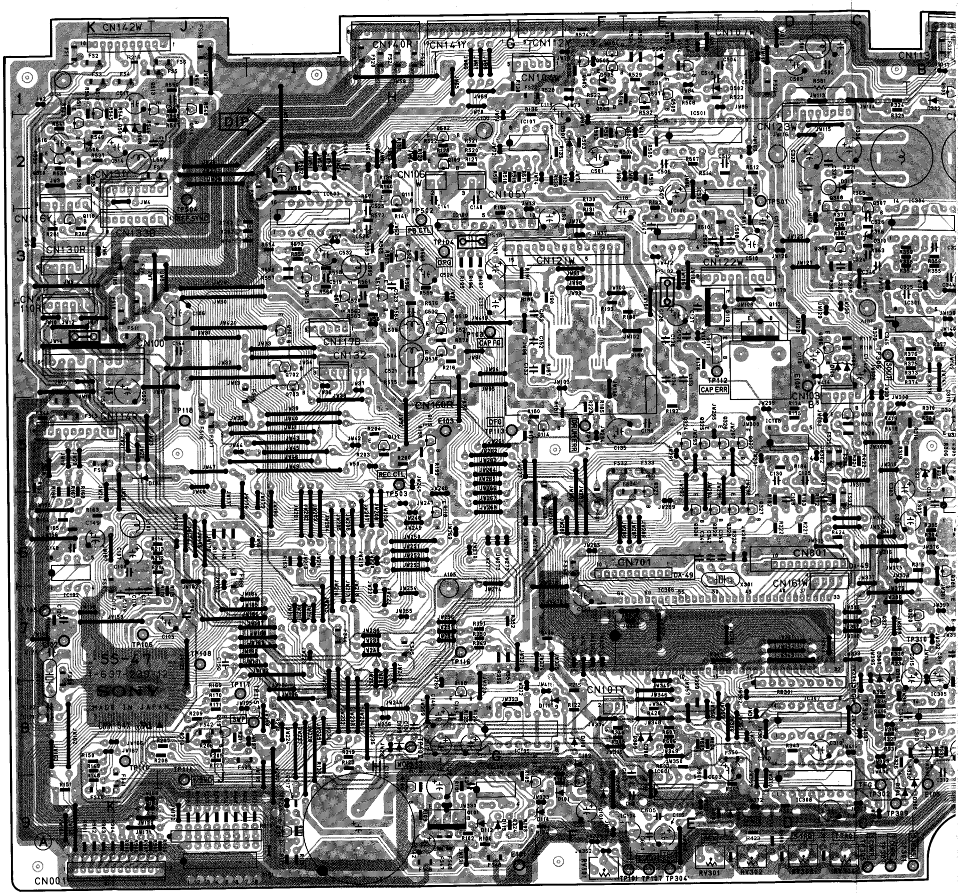
SS-47A —B SIDE—
1-637-239-13 (1)
SVO-960P

SS-47A; SERVO/SYSTEM CONTROL

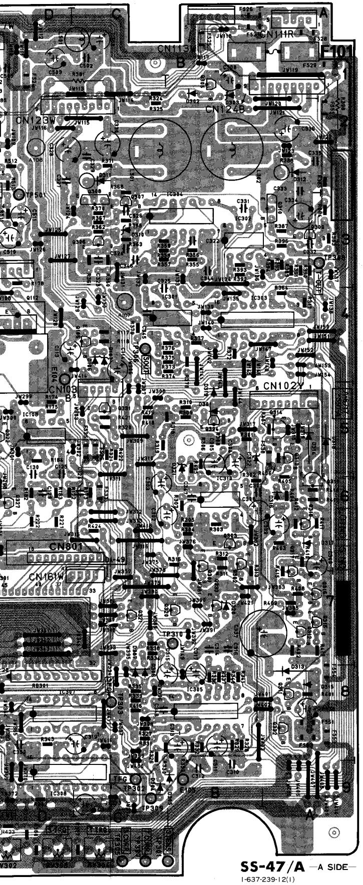
SS-47A (1-637-239-12) A SIDE

CN100	K-4	D320	B-7	Q113	D-4	Q701	I-4
CN101	F-8	D321	B5	Q114	F-5	Q702	I-4
CN102	A-5	D322	B5	Q115	H-5	Q703	I-4
CN103	D-5	D501	F-2	Q116	K-3		
CN104	F-1	D502	D-1	Q118	G-6	RB101	I-9
CN105	G-2	D503	E-1	Q119	J-8	RB301	D-8
CN106	H-2	D504	E-1	Q301	B-7		
CN107	D-1	D505	F-1	Q302	B-6	RV101	F-9
CN110	K-4	D506	K-2	Q303	B-6	RV301	D-9
CN111	A-1	D507	K-2	Q304	B-5	RV302	C-9
CN112	F-1	D508	K-2	Q305	B-1	RV303	C-9
CN113	C-1			Q306	C-3	RV304	C-9
CN114	K-5	E101	G-9	Q307	C-3		
CN116	K-3	E102	K-7	Q308	C-2	S101	I-9
CN117	I-4	E103	G-5	Q309	A-3		
CN121	F-3	E104	D-4	Q310	A-3	TP101	F-9
CN122	D-3	E105	B-9	Q311	A-8	TP102	H-8
CN123	D-2			Q312	A-7	TP103	G-4
CN124	B-2	F101	A-1	Q313	A-5	TP104	G-3
CN130	K-3			Q314	A-5	TP105	K-7
CN131	K-2	IC101	*K-7	Q315	A-7	TP106	K-7
CN132	I-4	IC102	K-7	Q316	A-7	TP107	E-9
CN140	H-1	IC103	G-8	Q317	A-6	TP108	J-7
CN141	G-1	IC104	D-9	Q318	A-6	TP110	K-8
CN142	K-1	IC106	E-3	Q319	A-6	TP111	J-8
CN160	H-5	IC107	G-2	Q320	C-7	TP112	E-4
CN161	D-7	IC108	D-5	Q321	C-5	TP113	G-5
		IC109	G-3	Q322	D-5	TP114	F-5
D101	F-9	IC110	*F-4	Q323	E-6	TP115	I-8
D102	F-8	IC301	B-4	Q324	E-5	TP116	G-7
D103	F-8	IC302	B-3	Q325	E-5	TP117	J-8
D104	K-5	IC303	B-4	Q326	D-5	TP118	J-5
D105	K-3	IC304	B-3	Q327	D-6	TP301	C-9
D106	C-4	IC305	B-8	Q328	D-6	TP302	C-9
D107	C-4	IC306	E-7	Q331	C-5	TP303	C-8
D108	D-9	IC307	D-8	Q332	A-8	TP304	E-9
D112	G-9	IC308	D-9	Q333	B-7	TP305	C-9
D113	G-9	IC310	B-6	Q501	E-2	TP306	C-4
D114	F-9	IC501	E-2	Q502	G-2	TP307	C-9
D301	B-5	IC502	E-2	Q503	F-1	TP308	A-3
D302	B-2	IC503	I-2	Q504	F-1	TP309	C-9
D303	B-2	IC601	E-9	Q505	F-1	TP310	B-7
D304	C-9			Q506	F-2	TP501	D-3
D305	B-9	PS101	G-3	Q507	E-1	TP502	H-3
D306	C-7	PS102	E-3	Q508	E-1	TP503	H-5
D307	C-7	PS103	K-4	Q509	E-1	TP504	J-3
D308	E-8			Q510	K-2		
D309	E-8	Q101	G-9	Q511	K-1	X101	K-7
D310	C-3	Q102	G-8	Q512	K-1	X301	D-7
D311	C-2	Q103	F-9	Q513	J-1		
D312	A-2	Q104	H-9	Q514	J-2		
D313	A-8	Q105	I-9	Q515	I-3		
D314	A-5	Q106	C-4	Q516	I-4		
D315	A-8	Q108	G-8	Q517	H-3		
D316	A-6	Q109	G-2	Q518	H-4		
D317	A-6	Q110	H-2	Q519	G-4		
D318	A-5	Q111	E-4	Q520	H-3		
D319	B-5	Q112	D-4	Q521	G-4		

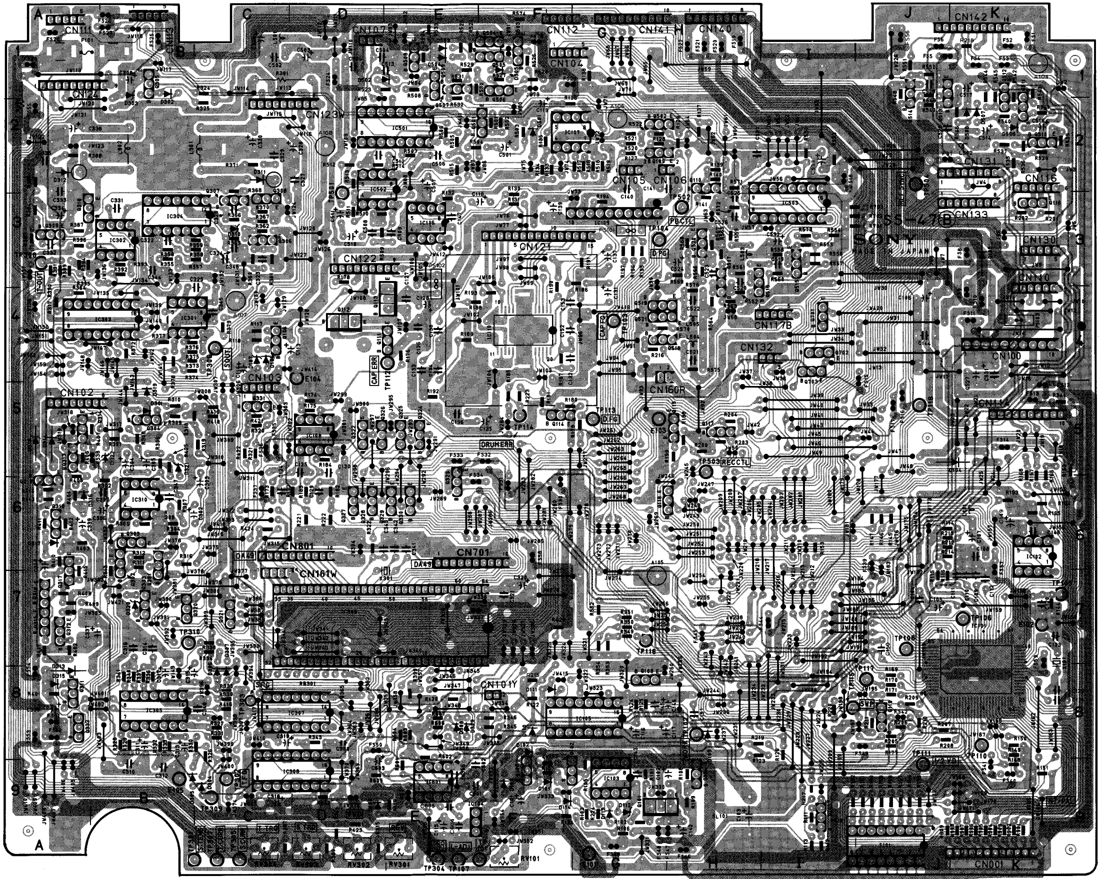
* mark; B SIDE MOUNT.


K
CN142W
J
CN140R
CN141Y
G
CN112Y
F
E
CN107A
D
C
CN113
B
1
2
3
4
5
6
7
8
9
A
DIP
REF SYNC
CN131X
CN133X
CN130R
CN116Y
CN110R
CN100
CN114R
CN117B
CN132
CN106W
CN105Y
CN121W
CN122W
CN123W
CN160R
CN101Y
CN701
CN801
CN161W
PB CTL
DPG
CAP FG
CAP ERR
DFG
DRUM ERR
REC CTL
SS-47
1-637-239-12
SONY
MADE IN JAPAN
CN001
TP101 TP107 TP304
RV101
RV301
RV302

A Side is the same as COMPONENT Side



SS-47/A —A SIDE—
1-637-239-12(1)
SVO-960
SVO-960P



B Side is the same as SOLDER Side

SS-47/A —B SIDE—
1-637-239-12(1)
SVO-960
SVO-960P

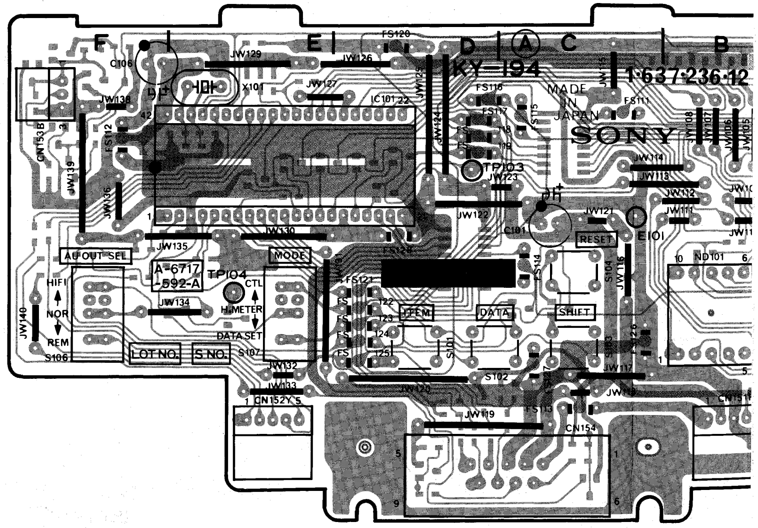
KY-194A ; FUNCTION KEY BOARD

KY-194A (1-637-236-12) A SIDE

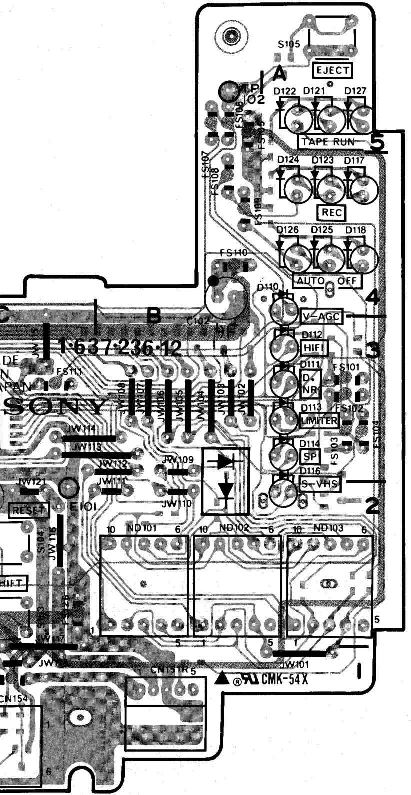
CN151	B-1
CN152	E-1
CN153	F-3
CN154	C-1
D101	⋆C-2
D103	⋆C-2
D105	⋆A-5
D106	⋆E-2
D107	⋆E-2
D110	A-4
D111	A-3
D112	A-3
D113	A-3
D117	A-4
D118	A-4
D119	⋆F-3
D120	⋆F-4
D121	A-5
D122	A-5
D123	A-4
D124	A-4
D125	A-4
D126	A-4
D127	A-5
D128	⋆A-3
E101	C-2
IC101	D-3
IC102	⋆C-3
IC103	⋆D-2
ND101	B-2
ND102	B-2
ND103	A-2
Q101	⋆B-3
Q102	⋆B-3
Q103	⋆B-3
Q104	⋆B-3
Q105	⋆B-3
Q106	⋆B-3
Q107	⋆B-3
Q108	⋆E-3
Q109	⋆E-3
Q110	⋆D-3
Q111	⋆D-3
Q112	⋆D-3
Q113	⋆D-3
Q114	⋆F-3
Q115	⋆F-3
Q116	⋆F-3
Q117	⋆F-3
Q118	⋆D-1
Q119	⋆C-1
Q120	⋆A-2
Q121	⋆A-3

S101	D-2
S102	D-2
S103	C-2
S104	C-2
S105	A-5
S106	F-2
S107	E-2
TP102	B-5
TP103	D-3
TP104	E-2
X101	E-3

⋆ mark ; B SIDE MOUNT.

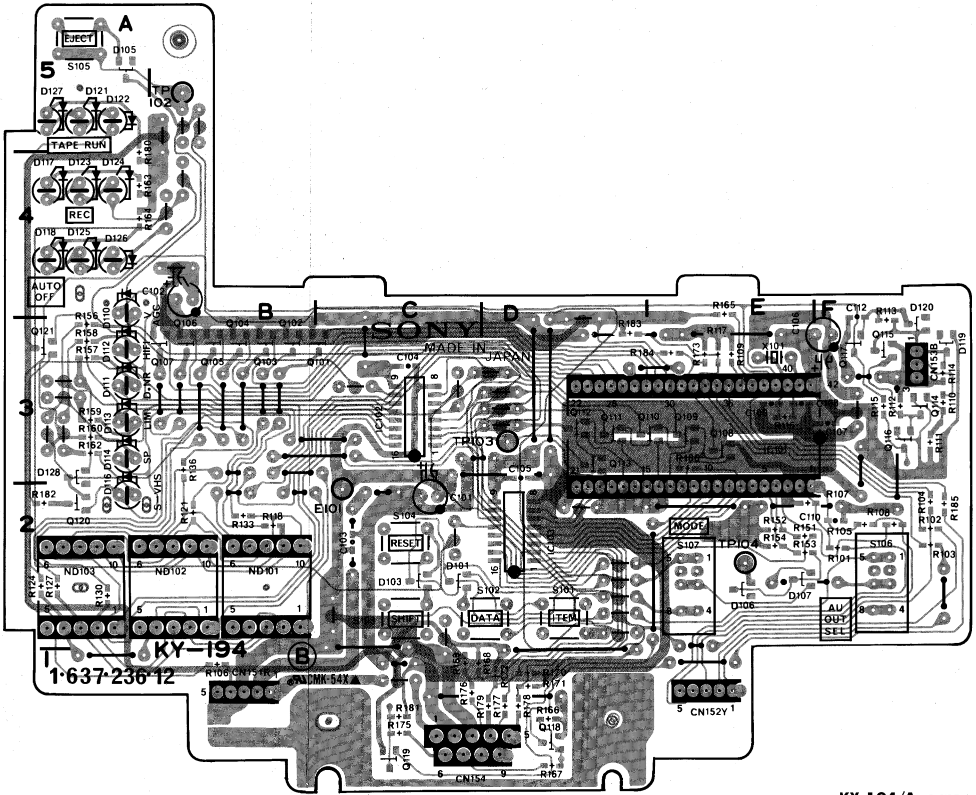

F
E
D
Ⓐ
C
B
KY-194
1-637-236-12
MADE IN JAPAN
SONY
C106
X101
JW129
JW126
FS120
JW127
IC101
22
42
1
JW138
CN153B
3
FS112
JW139
JW136
JW135
JW130
JW125
JW124
JW115
FS116
FS117
FS115
FS
118
119
TP103
JW123
JW122
C101
FS111
JW108
JW107
JW106
JW105
JW114
JW113
JW112
JW111
JW121
E101
RESET
AU OUT SEL
MODE
A-6717
-592-A
TP104
CTL
H.METER
DATA SET
HIFI
NOR
REM
S106
JW140
JW134
LOT NO.
S NO.
S107
FS128
FS121
122
123
124
125
ITEM
DATA
SHIFT
S101
S102
S103
S104
FS114
JW116
FS126
10
ND101
6
1
5
JW132
JW133
1
CN152Y
5
JW120
JW119
FS113
CN154
JW117
JW118
CN151
9
6

A Side is the same as COMPONENT Side


S105
EJECT
A
TP 102
D122 D121 D127
TAPE RUN
5
D124 D123 D117
REC
D126 D125 D118
AUTO OFF
FS105
FS106
FS107
FS108
FS109
FS110
D110
V-AGC
4
C102
B
1·637·236·12
D112
HIFI
3
D111
D·NR
FS101
D113
LIMITER
FS102
FS103
FS104
D114
SP
D116
S-VHS
2
SONY
JW114
JW113
JW112
JW111
JW109
JW110
JW121
JW115
JW116
JW117
JW101
RESET
E101
ND101
ND102
ND103
S104
S103
SHIFT
CN131
CN154
CMK-54X
1

KY-194/A —A SIDE—
1-637-236-11, 12(1)
SVO-960
SVO-960P

NT Side


A
EJECT
D105
5
S105
D127 D121 D122
TP 102
TAPE RUN
R180
D117 D123 D124
R163
4
REC
R161
D118 D125 D126
AUTO OFF
C102
Q106
Q121
R156
R158
R157
D110
D112
V AGC
HIFI
Q107
Q105
Q104
Q103
Q102
Q101
B
C
D
SONY
MADE IN JAPAN
C104
3
R159
R160
R162
D111
D113
D.NR
LIM
IC102
TP103
D128
R182
D114
D116
SP
S-VHS
R136
C105
C101
2
Q120
R121
R133
R118
E101
S104
C103
RESET
IC103
ND103
ND102
ND101
R124
R127
R130
D103
D101
S102
S101
SHIFT
DATA
ITEM
KY-194
B
1·637·236·12
R106
CN151
CMK-54X
R176
R179
R177
R178
R181
R175
R166
Q118
Q119
CN154
R167
R165
E
F
C112
R113
D120
R183
R117
C106
Q115
R184
R173
R109
X101
Q117
CN153B
D119
R114
IC101
Q111
Q110
D109
Q108
Q112
Q113
R100
R116
D107
R115
R112
Q114
R110
R111
Q116
R107
R104
R102
R185
R108
R152
R151
C110
R154
R153
R105
R101
MODE
S107
TP104
S106
R103
D106
D107
AU OUT SEL
CN152Y
TP 104

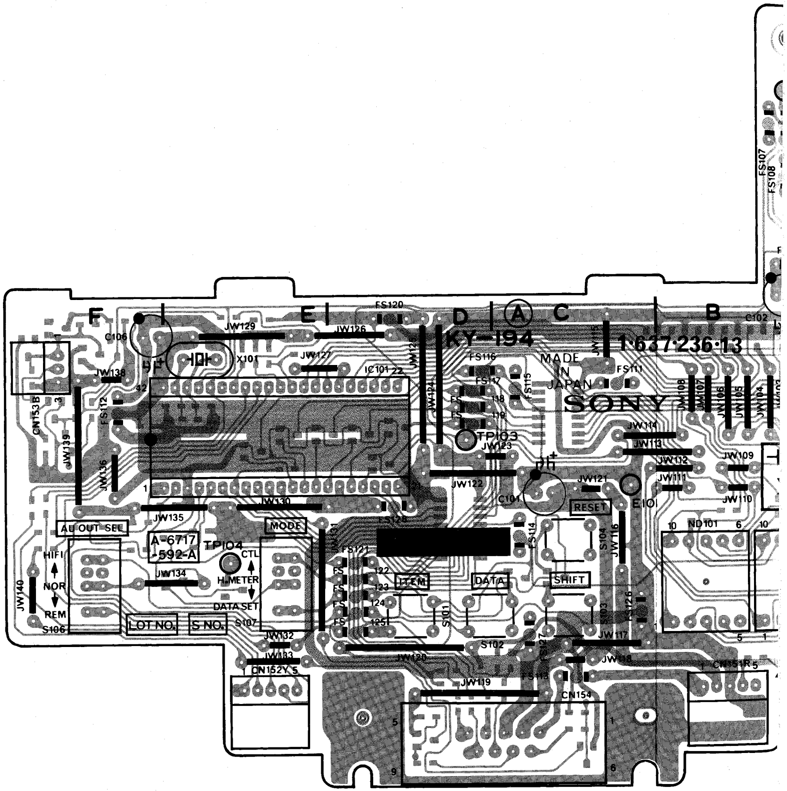
B Side is the same as SOLDER Side

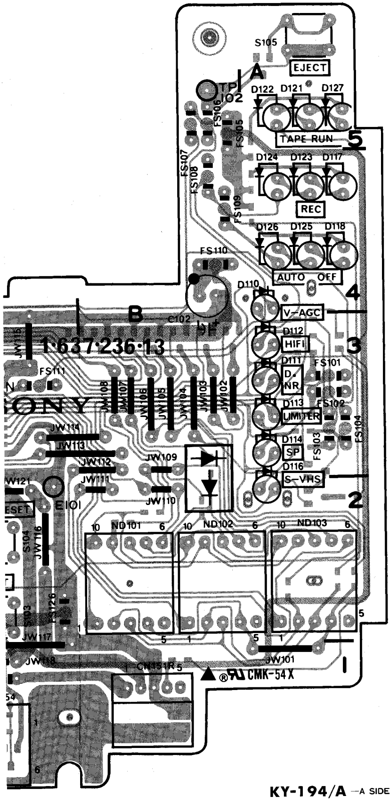
KY-194/A —B SIDE—
1-637-236-11, 12(1)
SVO-960
SVO-960P

KY-194A ; FUNCTION KEY BOARD

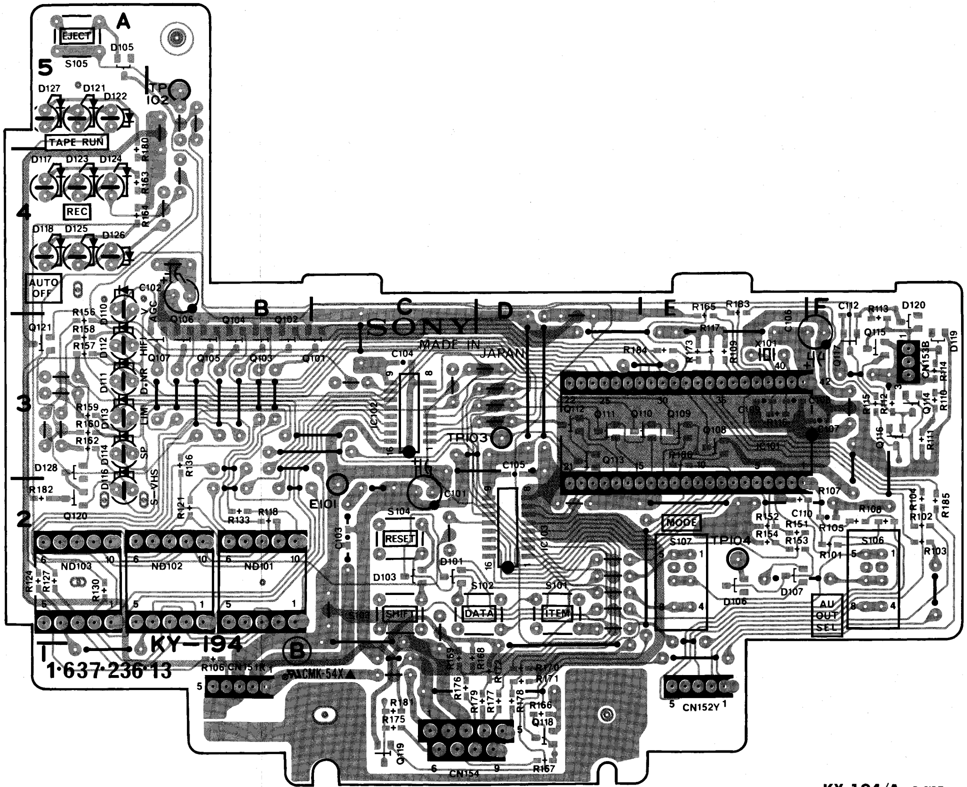
KY-194A (1-637-236-13) A SIDE

CN151	B-1
CN152	E-1
CN153	F-3
CN154	C-1
D101	*C-2
D103	*C-2
D105	*A-5
D106	*E-2
D107	*E-2
D110	A-4
D111	A-3
D112	A-3
D113	A-3
D117	A-4
D118	A-4
D119	*F-3
D120	*F-4
D121	A-5
D122	A-5
D123	A-4
D124	A-4
D125	A-4
D126	A-4
D127	A-5
D128	*A-3
E101	C-2
IC101	D-3
IC102	*C-3
IC103	*D-2
ND101	B-2
ND102	B-2
ND103	A-2
Q101	*B-3
Q102	*B-3
Q103	*B-3
Q104	*B-3
Q105	*B-3
Q106	*B-3
Q107	*B-3
Q108	*E-3
Q109	*E-3
Q110	*D-3
Q111	*D-3
Q112	*D-3
Q113	*D-3
Q114	*F-3
Q115	*F-3
Q116	*F-3
Q117	*F-3
Q118	*D-1
Q119	*C-1
Q120	*A-2
Q121	*A-3
S101	D-2
S102	D-2
S103	C-2
S104	C-2
S105	A-5
S106	F-2
S107	E-2
TP102	B-5
TP103	D-3
TP104	E-2
X101	E-3


F
E
D
Ⓐ
C
B
KY-194
1-637-236-13
MADE IN JAPAN
SONY
C106
X101
JW129
JW126
JW127
FS120
FS116
FS117
FS111
FS115
FS112
IC101
JW138
CN153B
JW139
JW136
42
1
22
TP103
JW123
JW122
JW121
C101
E101
RESET
C102
JW114
JW113
JW112
JW111
JW109
JW110
JW108
JW107
JW106
JW105
JW104
ND101
JW135
JW130
AU OUT SEL
MODE
A-6717-592-A
TP104
CTL
H.METER
DATA SET
HIFI
NOR
REM
S106
JW140
JW134
LOT NO.
S NO.
S107
FS121
FS122
FS123
FS124
FS125
ITEM
DATA
SHIFT
S104
JW116
S101
S102
S103
JW117
JW118
JW119
JW120
JW132
JW133
CN152Y
CN154
CN151R
FS107
FS108
5
9
6
1

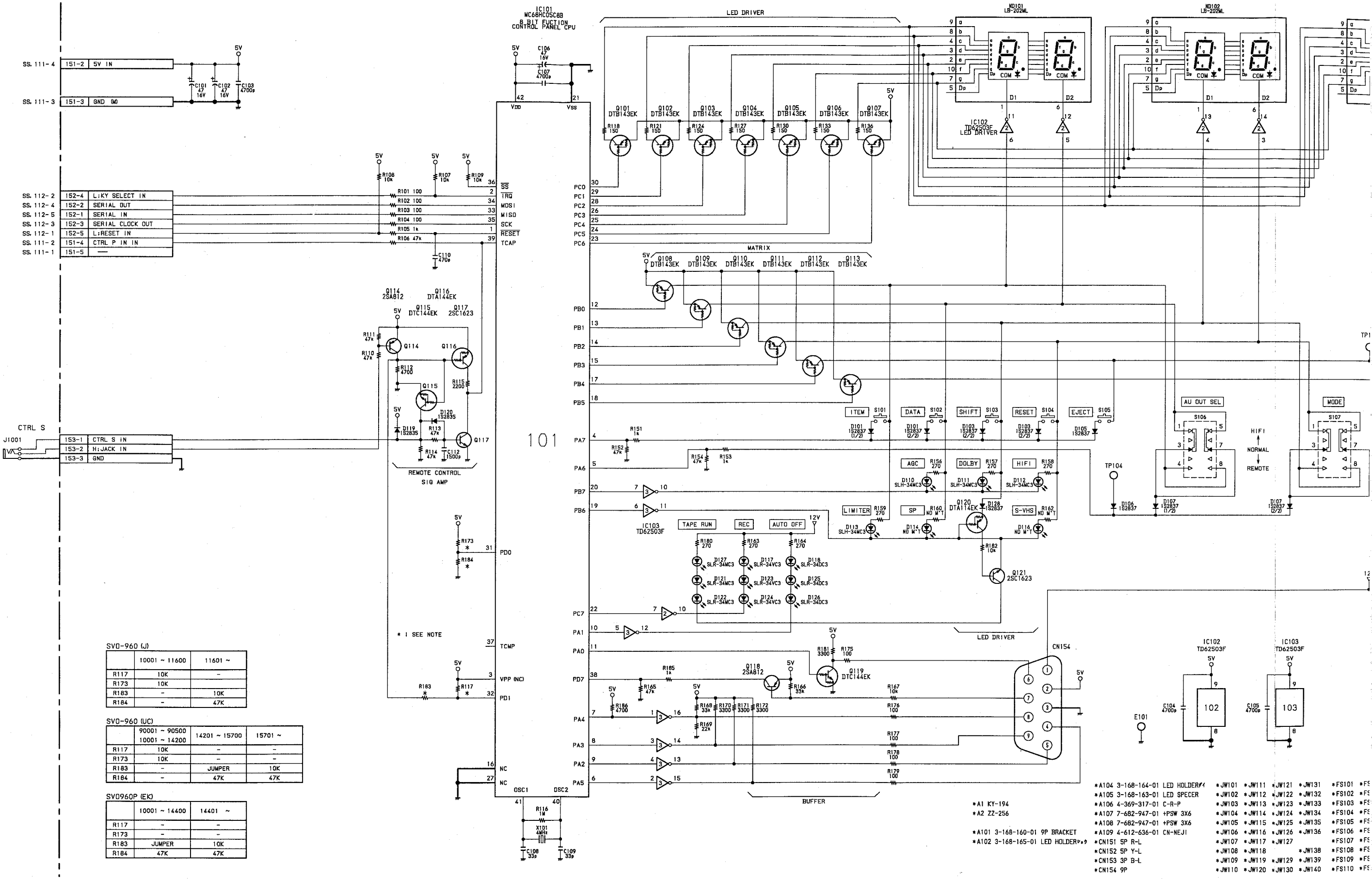

EJECT
S105
TP102
A
D122 D121 D127
TAPE RUN
5
D124 D123 D117
REC
D126 D125 D118
AUTO OFF
FS110
D110
V-AGC
4
D112
HIFI
3
D111
D.NR
D113
LIMITER
D114
SP
D116
S-VHS
2
B
C102
1·637·236·13
SONY
E101
RESET
ND101 ND102 ND103
JW101 JW102 JW103 JW104 JW105 JW106 JW107 JW108 JW109 JW110 JW111 JW112 JW113 JW114
CN151R
CMK-54X
1

KY-194/A —A SIDE—
1-637-236-13 (1)
SVO-960
SVO-960P


A
EJECT
S105
D105
TP102
5
D127 D121 D122
TAPE RUN
D117 D123 D124
REC
4
D118 D125 D126
AUTO OFF
C102
Q106
B
C
D
E
F
SONY
MADE IN JAPAN
3
IC102
TP103
C101
IC101
TP104
2
E101
S104
RESET
MODE
S107
S106
AU OUT SEL
SHIFT
DATA
ITEM
S103 S102 S101
ND103 ND102 ND101
KY-194
1·637·236·13
B
CN151R
CMK-54X
CN154
CN152Y
CN153B
X101

KY-194/A —B SIDE—
1-637-236-13 (1)
SVO-960
SVO-960P

KY-194A ; FUNCTION KEY BOARD


IC101
MC68HC05C8B
8 BIT FUCTION
CONTROL PANEL CPU
LED DRIVER
ND101
LB-202ML
ND102
LB-202ML
Q101 DTB143EK
Q102 DTB143EK
Q103 DTB143EK
Q104 DTB143EK
Q105 DTB143EK
Q106 DTB143EK
Q107 DTB143EK
IC102
TD62503F
LED DRIVER
MATRIX
Q108 DTB143EK
Q109 DTB143EK
Q110 DTB143EK
Q111 DTB143EK
Q112 DTB143EK
Q113 DTB143EK
SS. 111-4
1S1-2 5V IN
SS. 111-3
1S1-3 GND (M)
SS. 112-2
1S2-4 L:KY SELECT IN
SS. 112-4
1S2-2 SERIAL OUT
SS. 112-5
1S2-1 SERIAL IN
SS. 112-3
1S2-3 SERIAL CLOCK OUT
SS. 112-1
1S2-5 L:RESET IN
SS. 111-2
1S1-4 CTRL P IN IN
SS. 111-1
1S1-5
CTRL S
J1001
1S3-1 CTRL S IN
1S3-2 H:JACK IN
1S3-3 GND
Q114 2SA812
Q116 DTA144EK
Q115 DTC144EK
Q117 2SC1623
REMOTE CONTROL
SIG AMP
101
SS
IRQ
MOSI
MISO
SCK
RESET
TCAP
PC0
PC1
PC2
PC3
PC4
PC5
PC6
PB0
PB1
PB2
PB3
PB4
PB5
PA7
PA6
PB7
PB6
PD0
PC7
PA1
PA0
PD7
PA4
PA3
PA2
PA5
TCMP
VPP (NC)
PD1
NC
NC
OSC1
OSC2
VDD
VSS
IC103
TD62503F
ITEM
DATA
SHIFT
RESET
EJECT
S101
S102
S103
S104
S105
AGC
DOLBY
HIFI
LIMITER
SP
S-VHS
TAPE RUN
REC
AUTO OFF
Q120 DTA114EK
Q121 2SC1623
AU OUT SEL
S106
MODE
S107
HIFI
NORMAL
REMOTE
TP104
LED DRIVER
CN154
Q118 2SA812
Q119 DTC144EK
BUFFER
X101 4MHz
* : SEE NOTE
IC102
TD62503F
IC103
TD62503F
102
103
E101

SVO-960 (J)

	10001 ~ 11600	11601 ~
R117	10K	–
R173	10K	
R183	–	10K
R184	–	47K

SVO-960 (UC)

	90001 ~ 90500 10001 ~ 14200	14201 ~ 15700	15701 ~
R117	10K	–	–
R173	10K	–	–
R183	–	JUMPER	10K
R184	–	47K	47K

SVO960P (EK)

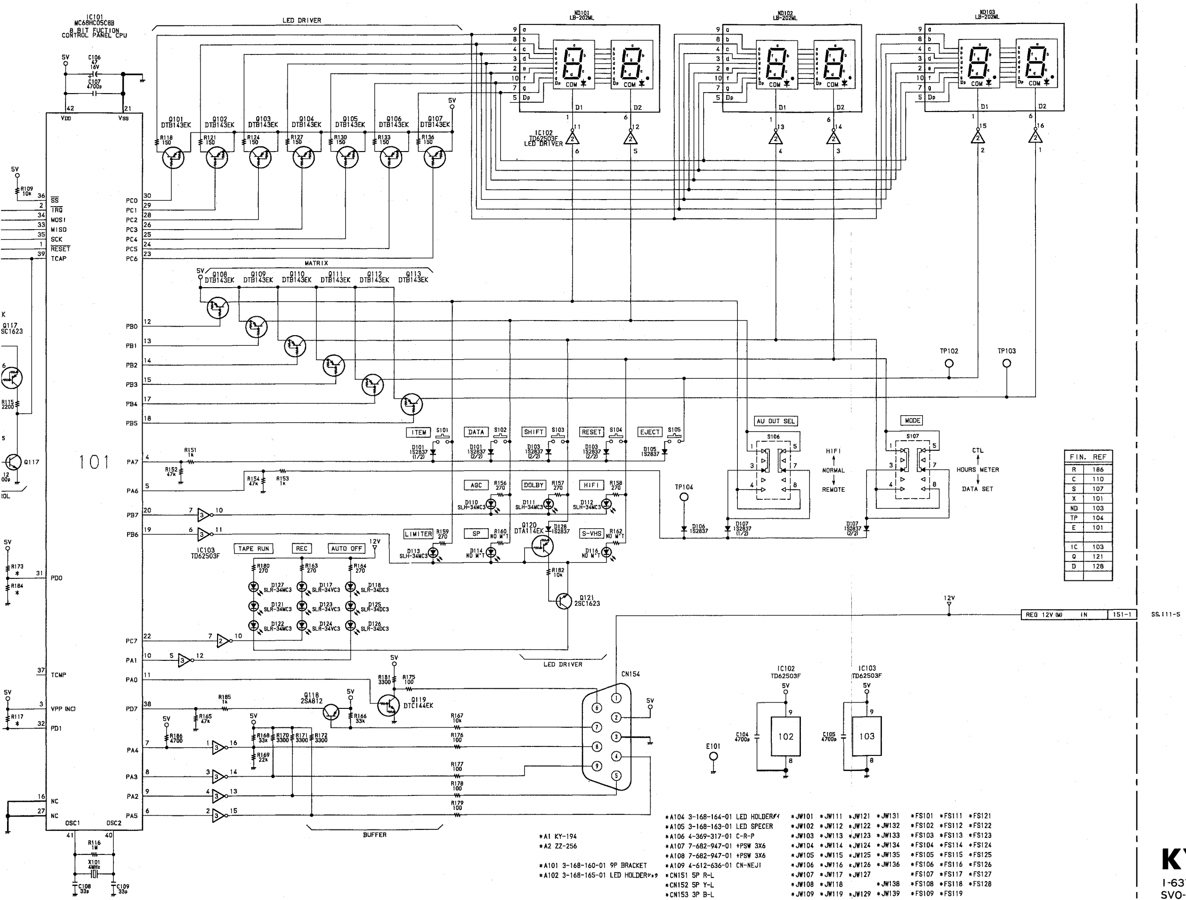
	10001 ~ 14400	14401 ~
R117	–	–
R173	–	–
R183	JUMPER	10K
R184	47K	47K

*A1 KY-194
*A2 ZZ-256

*A101 3-168-160-01 9P BRACKET
*A102 3-168-165-01 LED HOLDERｼｮｸ

*A104 3-168-164-01 LED HOLDERﾎｲ
*A105 3-168-163-01 LED SPECER
*A106 4-369-317-01 C-R-P
*A107 7-682-947-01 +PSW 3X6
*A108 7-682-947-01 +PSW 3X6
*A109 4-612-636-01 CN-NEJI
*CN151 5P R-L
*CN152 5P Y-L
*CN153 3P B-L
*CN154 9P

*JW101
*JW102
*JW103
*JW104
*JW105
*JW106
*JW107
*JW108
*JW109
*JW110
*JW111
*JW112
*JW113
*JW114
*JW115
*JW116
*JW117
*JW118
*JW119
*JW120
*JW121
*JW122
*JW123
*JW124
*JW125
*JW126
*JW127
*JW129
*JW130
*JW131
*JW132
*JW133
*JW134
*JW135
*JW136
*JW138
*JW139
*JW140
*FS101
*FS102
*FS103
*FS104
*FS105
*FS106
*FS107
*FS108
*FS109
*FS110


IC101
MC68HC05C8B
8 BIT FUCTION CONTROL PANEL CPU
101
LED DRIVER
ND101 LB-202ML
ND102 LB-202ML
ND103 LB-202ML
IC102 TD62503F LED DRIVER
IC103 TD62503F
Q101–Q107 DTB143EK
Q108–Q113 DTB143EK
MATRIX
ITEM
DATA
SHIFT
RESET
EJECT
AGC
DOLBY
HIFI
LIMITER
SP
S-VHS
TAPE RUN
REC
AUTO OFF
AU OUT SEL
MODE
HIFI
NORMAL
REMOTE
CTL
HOURS METER
DATA SET
TP102
TP103
TP104
Q117 2SC1623
Q118 2SA812
Q119 DTC144EK
Q120 DTA114EK
Q121 2SC1623
CN154
BUFFER
X101 4MHz
E101
REG 12V (M) IN
151-1
SS.111-S

FIN. REF	
R	186
C	110
S	107
X	101
ND	103
TP	104
E	101
IC	103
Q	121
D	128

*A1 KY-194
*A2 ZZ-256

*A101 3-168-160-01 9P BRACKET
*A102 3-168-165-01 LED HOLDERｼｮｳ

*A104 3-168-164-01 LED HOLDERﾀﾞｲ
*A105 3-168-163-01 LED SPECER
*A106 4-369-317-01 C-R-P
*A107 7-682-947-01 +PSW 3X6
*A108 7-682-947-01 +PSW 3X6
*A109 4-612-636-01 CN-NEJI
*CN151 5P R-L
*CN152 5P Y-L
*CN153 3P B-L
*CN154 9P

*JW101 *JW102 *JW103 *JW104 *JW105 *JW106 *JW107 *JW108 *JW109 *JW110
*JW111 *JW112 *JW113 *JW114 *JW115 *JW116 *JW117 *JW118 *JW119 *JW120
*JW121 *JW122 *JW123 *JW124 *JW125 *JW126 *JW127 *JW129 *JW130
*JW131 *JW132 *JW133 *JW134 *JW135 *JW136 *JW138 *JW139 *JW140
*FS101 *FS102 *FS103 *FS104 *FS105 *FS106 *FS107 *FS108 *FS109 *FS110
*FS111 *FS112 *FS113 *FS114 *FS115 *FS116 *FS117 *FS118 *FS119 *FS120
*FS121 *FS122 *FS123 *FS124 *FS125 *FS126 *FS127 *FS128

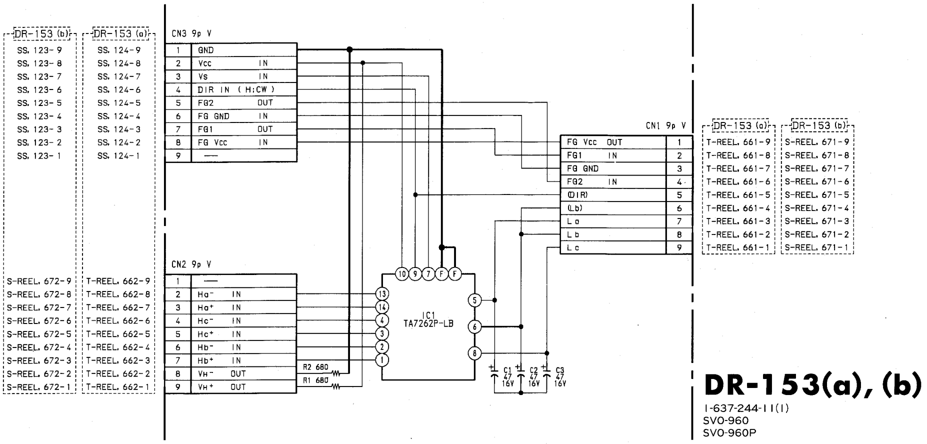
KY-194/A

1-637-236-11, 12, 13 (2)
SVO-960
SVO-960P

1 2 3 4 5

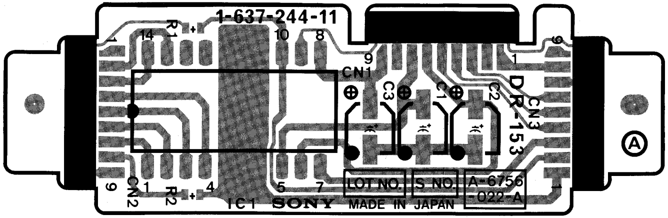
D E F G H I J K L

DR-153 (a), (b); T REEL, S REEL DRIVER
TR-68A; TRACKING/SWITCHING POSITION VOLUME


DR-153 (b)
SS. 123-9
SS. 123-8
SS. 123-7
SS. 123-6
SS. 123-5
SS. 123-4
SS. 123-3
SS. 123-2
SS. 123-1
DR-153 (a)
SS. 124-9
SS. 124-8
SS. 124-7
SS. 124-6
SS. 124-5
SS. 124-4
SS. 124-3
SS. 124-2
SS. 124-1
CN3 9p V
1 GND
2 Vcc IN
3 Vs IN
4 DIR IN (H:CW)
5 FG2 OUT
6 FG GND IN
7 FG1 OUT
8 FG Vcc IN
9 —
CN1 9p V
FG Vcc OUT 1
FG1 IN 2
FG GND 3
FG2 IN 4
(DIR) 5
(Lb) 6
La 7
Lb 8
Lc 9
DR-153 (a)
T-REEL. 661-9
T-REEL. 661-8
T-REEL. 661-7
T-REEL. 661-6
T-REEL. 661-5
T-REEL. 661-4
T-REEL. 661-3
T-REEL. 661-2
T-REEL. 661-1
DR-153 (b)
S-REEL. 671-9
S-REEL. 671-8
S-REEL. 671-7
S-REEL. 671-6
S-REEL. 671-5
S-REEL. 671-4
S-REEL. 671-3
S-REEL. 671-2
S-REEL. 671-1
CN2 9p V
1 —
2 Ha- IN
3 Ha+ IN
4 Hc- IN
5 Hc+ IN
6 Hb- IN
7 Hb+ IN
8 VH- OUT
9 VH+ OUT
S-REEL. 672-9
S-REEL. 672-8
S-REEL. 672-7
S-REEL. 672-6
S-REEL. 672-5
S-REEL. 672-4
S-REEL. 672-3
S-REEL. 672-2
S-REEL. 672-1
T-REEL. 662-9
T-REEL. 662-8
T-REEL. 662-7
T-REEL. 662-6
T-REEL. 662-5
T-REEL. 662-4
T-REEL. 662-3
T-REEL. 662-2
T-REEL. 662-1
R2 680
R1 680
IC1
TA7262P-LB
10 9 7 F F
13 14 4 3 2 1
5 6 8
C1 47 16V
C2 47 16V
C3 47 16V

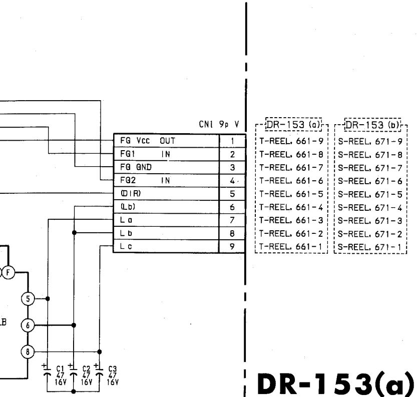
DR-153(a), (b)
1-637-244-11(1)
SVO-960
SVO-960P

SS. 117-
SS. 117-
SS. 117-
SS. 117-
SS. 117-


1-637-244-11
R1
14
1
10
8
9
CN1
C3
C1
C2
1
DR-153
CN3
9
Ⓐ
CN2
1
R2
4
5
7
IC1
SONY
LOT NO.
S NO.
A-6756-022-A
MADE IN JAPAN
1

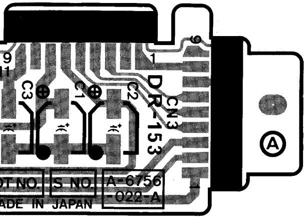
DR-153(a), (b) —A SIDE—
1-637-244-11(1)
SVO-960
SVO-960P

A Side is the same as COMPONENT Side


CN1 9p V
FG Vcc OUT 1
FG1 IN 2
FG GND 3
FG2 IN 4
(DIR) 5
(Lb) 6
La 7
Lb 8
Lc 9
DR-153 (a)
T-REEL, 661-9
T-REEL, 661-8
T-REEL, 661-7
T-REEL, 661-6
T-REEL, 661-5
T-REEL, 661-4
T-REEL, 661-3
T-REEL, 661-2
T-REEL, 661-1
DR-153 (b)
S-REEL, 671-9
S-REEL, 671-8
S-REEL, 671-7
S-REEL, 671-6
S-REEL, 671-5
S-REEL, 671-4
S-REEL, 671-3
S-REEL, 671-2
S-REEL, 671-1
F
5
6
8
LB
C1 47 16V
C2 47 16V
C3 47 16V

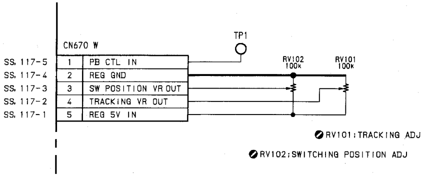
DR-153(a), (b)

1-637-244-11(1)
SVO-960
SVO-960P


9
1
C3
C1
C2
DR-153
CN3
Ⓐ
OT NO.
S NO.
A-6756-022-A
ADE IN JAPAN

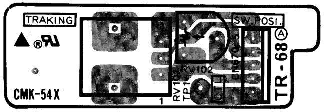
DR-153(a), (b) —A SIDE—
1-637-244-11(1)
SVO-960
SVO-960P

COMPONENT Side


CN670 W
TP1
RV102 100k
RV101 100k
SS, 117-5 1 PB CTL IN
SS, 117-4 2 REG GND
SS, 117-3 3 SW POSITION VR OUT
SS, 117-2 4 TRACKING VR OUT
SS, 117-1 5 REG 5V IN
RV101: TRACKING ADJ
RV102: SWITCHING POSITION ADJ

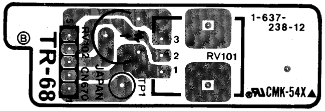
TR-68/A

1-637-238-11, 12(1)
SVO-960
SVO-960P


TRAKING
SW.POSI.
Ⓐ
3
1
RV101
RV102
TP1
CN670
5
1
CMK-54X
TR-68

TR-68 —A SIDE—
1-637-238-11, 12(1)
SVO-960
SVO-960P

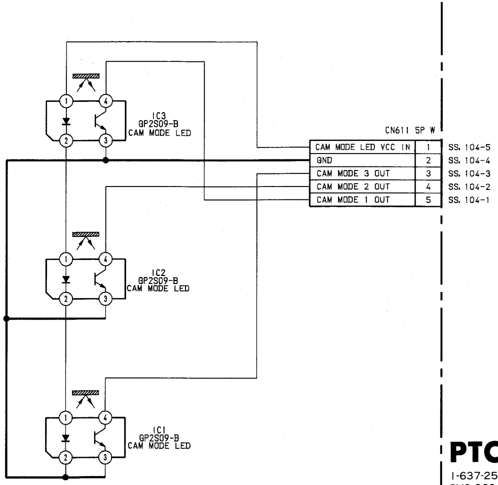
A Side is the same as COMPONENT Side


Ⓑ
TR-68
RV102
CN670
JAPAN
TP1
3
2
1
RV101
1-637-238-12
CMK-54X

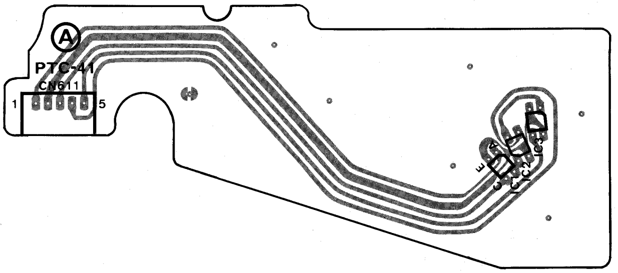
TR-68 —B SIDE—
1-637-238-11, 12
SVO-960
SVO-960P

B Side is the same as SOLDER Side

PTC-41 ; CAM MODE DETECT

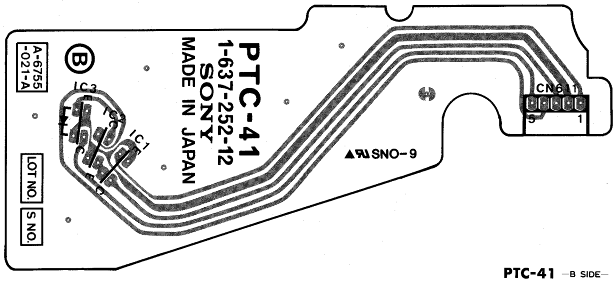

IC3
GP2S09-B
CAM MODE LED
IC2
GP2S09-B
CAM MODE LED
IC1
GP2S09-B
CAM MODE LED
1
2
3
4
CN611 5P W
CAM MODE LED VCC IN 1 SS, 104-5
GND 2 SS, 104-4
CAM MODE 3 OUT 3 SS, 104-3
CAM MODE 2 OUT 4 SS, 104-2
CAM MODE 1 OUT 5 SS, 104-1

PTC-41
1-637-252-11, 12(1)
SVO-960
SVO-960P


A
PTC-41
CN611
1
5
IC1
IC2
IC3
E
C
A

PTC-41 —A SIDE—
1-637-252-11, 12(1)
SVO-960
SVO-960P

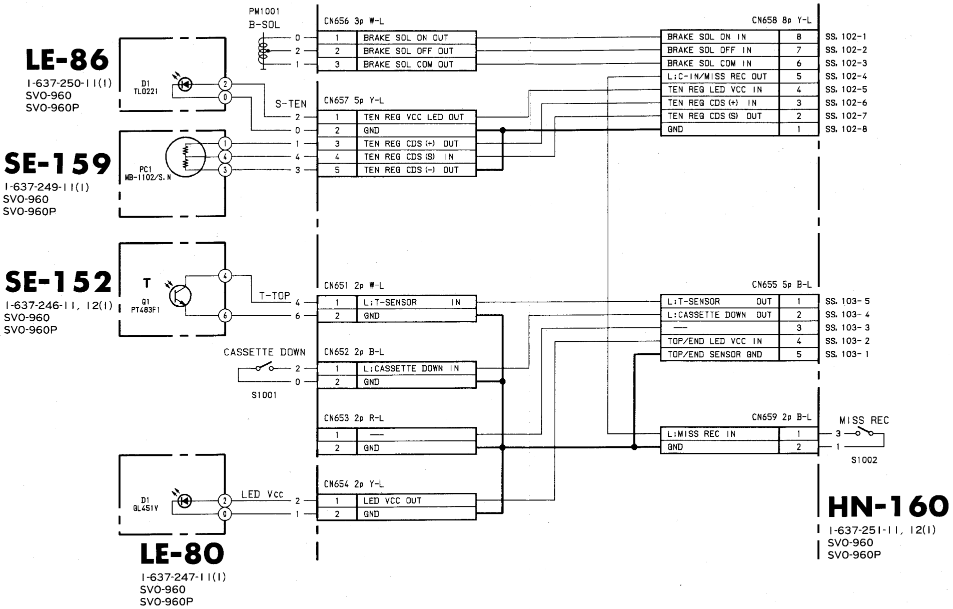
A Side is the same as COMPONENT Side


B
A-6755
-021-A
PTC-41
1-637-252-12
SONY
MADE IN JAPAN
IC3
IC2
IC1
E
C
A
LOT NO.
S NO.
SNO-9
CN611
5
1

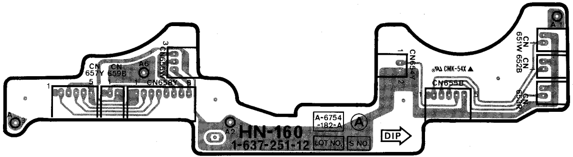
PTC-41 —B SIDE—
1-637-252-11, 12(1)
SVO-960
SVO-960P

B Side is the same as SOLDER Side

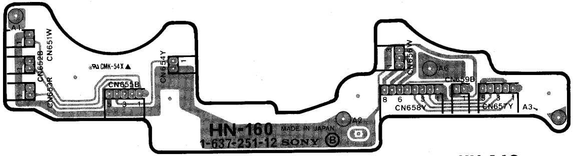
HN-160 ; CONNECTION BOARD
LE-80 ; TAPE TOP/END LED
LE-86 ; TENSION REGURATOR LED
SE-152 ; TAPE TOP SENSOR
SE-159 ; TENSION REGURATOR


LE-86
1-637-250-11(1)
SVO-960
SVO-960P
D1
TL0221
SE-159
1-637-249-11(1)
SVO-960
SVO-960P
PC1
MB-1102/S.N
SE-152
1-637-246-11, 12(1)
SVO-960
SVO-960P
T
Q1
PT483F1
LE-80
1-637-247-11(1)
SVO-960
SVO-960P
D1
GL451V
PM1001
B-SOL
S-TEN
T-TOP
CASSETTE DOWN
S1001
LED Vcc
CN656 3p W-L
1 BRAKE SOL ON OUT
2 BRAKE SOL OFF OUT
3 BRAKE SOL COM OUT
CN657 5p Y-L
1 TEN REG VCC LED OUT
2 GND
3 TEN REG CDS (+) OUT
4 TEN REG CDS (S) IN
5 TEN REG CDS (-) OUT
CN651 2p W-L
1 L:T-SENSOR IN
2 GND
CN652 2p B-L
1 L:CASSETTE DOWN IN
2 GND
CN653 2p R-L
1 —
2 GND
CN654 2p Y-L
1 LED VCC OUT
2 GND
CN658 8p Y-L
BRAKE SOL ON IN 8 SS, 102-1
BRAKE SOL OFF IN 7 SS, 102-2
BRAKE SOL COM IN 6 SS, 102-3
L;C-IN/MISS REC OUT 5 SS, 102-4
TEN REG LED VCC IN 4 SS, 102-5
TEN REG CDS (+) IN 3 SS, 102-6
TEN REG CDS (S) OUT 2 SS, 102-7
GND 1 SS, 102-8
CN655 5p B-L
L:T-SENSOR OUT 1 SS, 103-5
L:CASSETTE DOWN OUT 2 SS, 103-4
— 3 SS, 103-3
TOP/END LED VCC IN 4 SS, 103-2
TOP/END SENSOR GND 5 SS, 103-1
CN659 2p B-L
L;MISS REC IN 1
GND 2
MISS REC
S1002
HN-160
1-637-251-11, 12(1)
SVO-960
SVO-960P

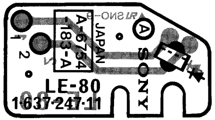
HN-160; CONNECTION BOARD
LE-80; TAPE TOP/END LED
LE-86; TENSION REGURATOR LED
SE-152; TAPE TOP SENSOR
SE-159; TENSION REGURATOR


CN 657Y
CN 659B
A6
CN656Y
CN658Y
CN654Y
CMK-54X
CN655B
CN 651W
CN 652B
CN 653R
A1
A2
A3
A-6754 -182-A
HN-160
1-637-251-12
LOT NO.
S NO.
DIP

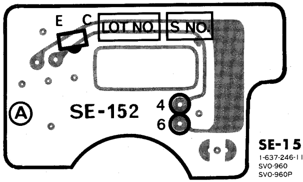
HN-160 —A SIDE—
1-637-251-11, 12(1)
SVO-960
SVO-960P


A1
CN651W
CN652B
CN653R
CMK-54X
CN655B
CN654Y
CN656W
A6
CN659B
CN658Y
CN657Y
A2
A3
HN-160
1-637-251-12
MADE IN JAPAN
SONY

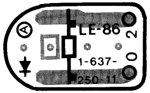
HN-160 —B SIDE—
1-637-251-11, 12(1)
SVO-960
SVO-960P


1
2
A-6754 183-A
JAPAN
SONY
LE-80
1-637-247-11

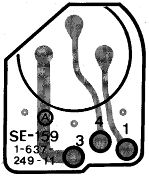
LE-80 —A SIDE—
1-637-247-11(1)
SVO-960
SVO-960P


E
C
LOT NO.
S NO.
SE-152
4
6

SE-152 —A SIDE—
1-637-246-11, 12(1)
SVO-960
SVO-960P


LE-86
1-637-
250-11
2
0

LE-86 —A SIDE—
1-637-250-11(1)
SVO-960
SVO-960P

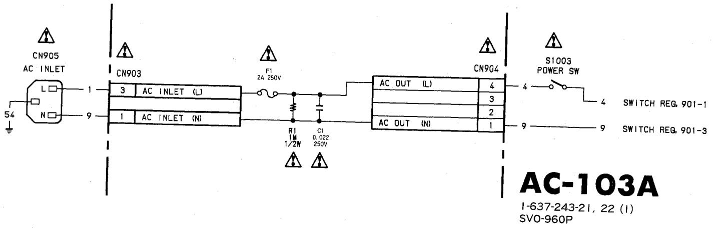

SE-159
1-637-
249-11
4
3
1

SE-159 —A SIDE—
1-637-249-11(1)
SVO-960
SVO-960P

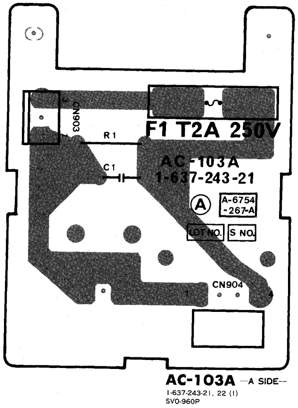
A Side is the same as COMPONENT Side

B Side is the same as SOLDER Side

AC-103A; AC INPUT

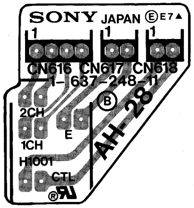

CN905
AC INLET
L
N
54
1
9
CN903
3 AC INLET (L)
1 AC INLET (N)
F1
2A 250V
R1
1M
1/2W
C1
0.022
250V
CN904
AC OUT (L)
AC OUT (N)
4
3
2
1
S1003
POWER SW
4
9
SWITCH REG. 901-1
SWITCH REG. 901-3
AC-103A
1-637-243-21, 22 (1)
SVO-960P

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.

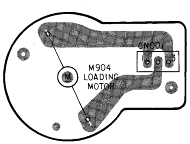

CN903
R1
C1
F1 T2A 250V
AC-103A
1-637-243-21
A
A-6754
-267-A
LOT NO.
S NO.
CN904
1
4
AC-103A — A SIDE —
1-637-243-21, 22 (1)
SVO-960P

A Side is the same as COMPONENT Side

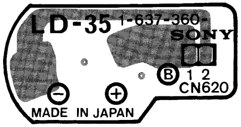
FRAME
AH-28; AUDIO/ERASE/CTL HEAD
CM-14; CASSETTE CONPARTMENT MOTOR
LD-35; LOADING MOTOR
SE-151; TAPE END SENSOR


SONY JAPAN Ⓔ E7
CN616 CN617 CN618
1-637-248-11
2CH
1CH
E
H1001
CTL
AH-28

AH-28 —B SIDE—
1-637-248-11(1)
SVO-960
SVO-960P

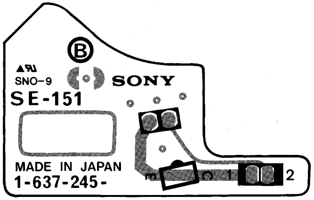

CN001
M904 LOADING MOTOR

CM-14 —B SIDE—
1-630-505-21(1)
SVO-960
SVO-960P


LD-35 1-637-360-
SONY
Ⓑ 1 2
CN620
MADE IN JAPAN

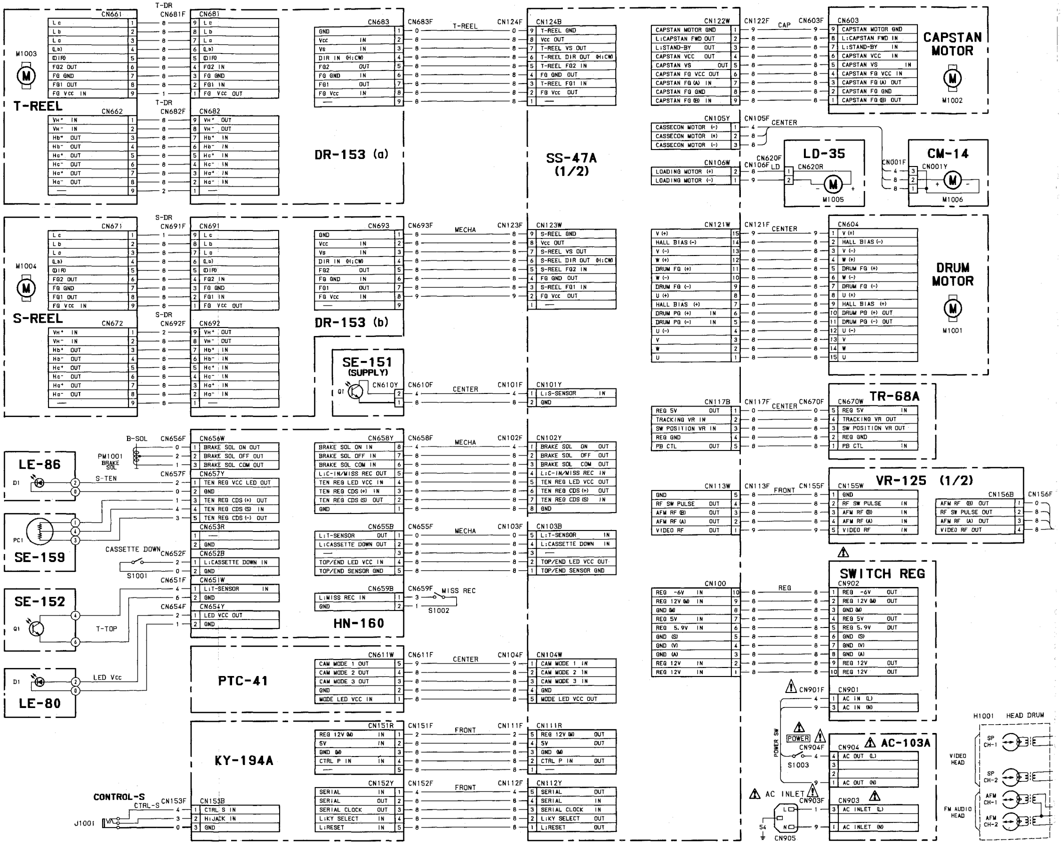
LD-35 —B SIDE—
1-637-360-11(1)2, 13(1)
SVO-960
SVO-960P

B Side is the same as SOLDER Side

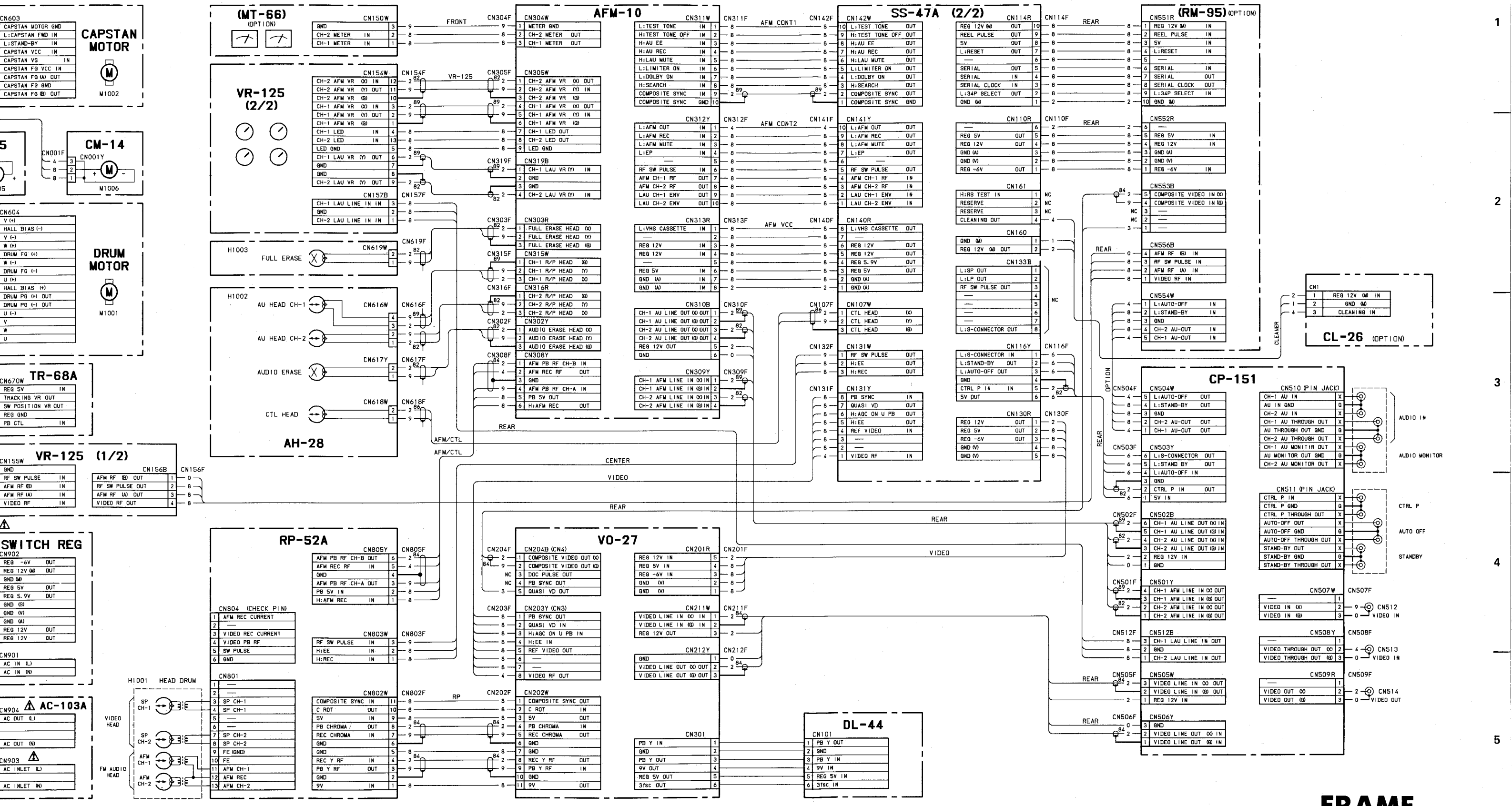

Ⓑ
SNO-9
SONY
SE-151
MADE IN JAPAN
1-637-245-
1
2

SE-151 —B SIDE—
1-637-245-11, 12, 13(2)
SVO-960
SVO-960P

B Side is the same as SOLDER Side


M1003
T-REEL
CN661
CN662
T-DR
CN681F
CN682F
CN681
CN682
M1004
S-REEL
CN671
CN672
S-DR
CN691F
CN692F
CN691
CN692
CN683
CN683F
T-REEL
DR-153 (a)
CN693
CN693F
MECHA
DR-153 (b)
SE-151 (SUPPLY)
CN610Y
CN610F
CENTER
CN124F
CN124B
CN123F
CN123W
CN101F
CN101Y
SS-47A (1/2)
CN122W
CN122F
CAP
CN603F
CN603
CAPSTAN MOTOR
M1002
CN105Y
CN105F
CENTER
CN106W
CN106F
LD
CN620F
CN620R
LD-35
M1005
CN001F
CN001Y
CM-14
M1006
CN121W
CN121F
CENTER
CN604
DRUM MOTOR
M1001
CN117B
CN117F
CENTER
CN670F
CN670W
TR-68A
CN113W
CN113F
FRONT
CN155F
CN155W
VR-125 (1/2)
CN156B
CN156F
SWITCH REG
CN902
CN100
REG
CN901F
CN901
POWER
POWER SW
S1003
CN904F
CN904
AC-103A
AC INLET
CN903F
CN903
CN905
H1001 HEAD DRUM
VIDEO HEAD
SP CH-1
SP CH-2
FM AUDIO HEAD
AFM CH-1
AFM CH-2
LE-86
B-SOL
PM1001 BRAKE SOL
CN656F
CN656W
S-TEN
CN657F
CN657Y
SE-159
PC1
CASSETTE DOWN
S1001
CN652F
CN652B
CN653R
SE-152
T-TOP
CN651F
CN651W
CN654F
CN654Y
LED Vcc
LE-80
CN658Y
CN658F
MECHA
CN102F
CN102Y
CN655B
CN655F
MECHA
CN103F
CN103B
CN659B
CN659F
MISS REC
S1002
HN-160
PTC-41
CN611W
CN611F
CENTER
CN104F
CN104W
KY-194A
CN151R
CN151F
FRONT
CN111F
CN111R
CN152Y
CN152F
FRONT
CN112F
CN112Y
CONTROL-S
CTRL-S
CN153F
CN153B
J1001

NOTE:
The ⚠-marked components are critical to sefety.
Replace only with same components as specified.


CAPSTAN MOTOR
M1002
CM-14
M1006
DRUM MOTOR
M1001
TR-68A
VR-125 (1/2)
SWITCH REG
AC-103A
(MT-66) (OPTION)
VR-125 (2/2)
FULL ERASE
AU HEAD CH-1
AU HEAD CH-2
AUDIO ERASE
CTL HEAD
AH-28
RP-52A
H1001 HEAD DRUM
VIDEO HEAD
FM AUDIO HEAD
AFM-10
VO-27
SS-47A (2/2)
DL-44
(RM-95) (OPTION)
CL-26 (OPTION)
CP-151
FRONT
AFM CONT1
AFM CONT2
AFM VCC
AFM/CTL
CENTER
VIDEO
REAR
RP
CLEANER
AUDIO IN
AUDIO MONITOR
CTRL P
AUTO OFF
STANDBY
VIDEO IN
VIDEO OUT
1
2
3
4
5

FRAME
SVO-960P(I)

H | I | J | K | L | M | N | O | P

SECTION 13
SPARE PARTS AND FIXTURE

13-1. PARTS INFORMATION

(1) The shaded and ⚠-marked components are critical to safety.
Replace only with same components as specified.

(2) Replacement Parts supplied from the Sony Parts Center will sometimes have a different shape from the original parts. This is due to **improved parts and/or engineering changes** or **standardization of genuine parts.**
This manual's exploded views and electrical spare parts list indicate the part numbers of **the standardized genuine parts at the present.** Regarding engineering part changes by the engineering department, refer to Sony service bulletins and service manual supplements.

(3) The parts marked with **s** in the SP column of the exploded views and electrical spare parts lists are normally stocked for replacement purposes. The parts marked with **o** in the SP column are not normally required for routine service work. Orders for parts marked with **o** will be processed, but allow for additional delivery time.

(4) Items with no part number and/or no description are not stocked because they are seldom required for routine service.

(5) All capacitors are in micro farads unless otherwise specified.
All inductors are in micro henries unless otherwise specified.
All resistors are in ohms.

13-2. EXPLODED VIEWS

- Exploded views are composed of the following blocks.

(1) Ornamental Panel Block
  Top Panel
  Front Panel
  U Case
  Rear Panel
  Switching Regulator

(2) Printed Circuit Boards
  Power Switch
  Remote Control Jack

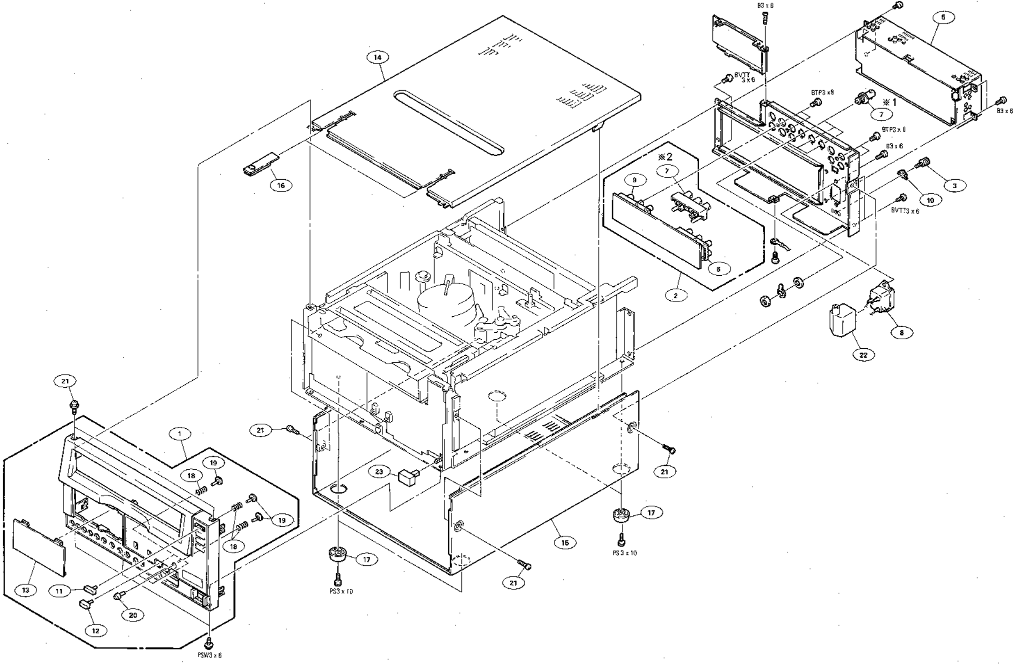
(3) Cassette Compartment Block

(4) Head Drum and Tape run Blocks
  Head Drum
  Cleaning Roller
  Tape Guides
  Stationary Heads
  Slide Rails

(5) Reel table and Pinch Roller Blocks
  S/T Reel table
  Pinch Roller Block
  Tension Regulator Arm
  RVS Tape Guide

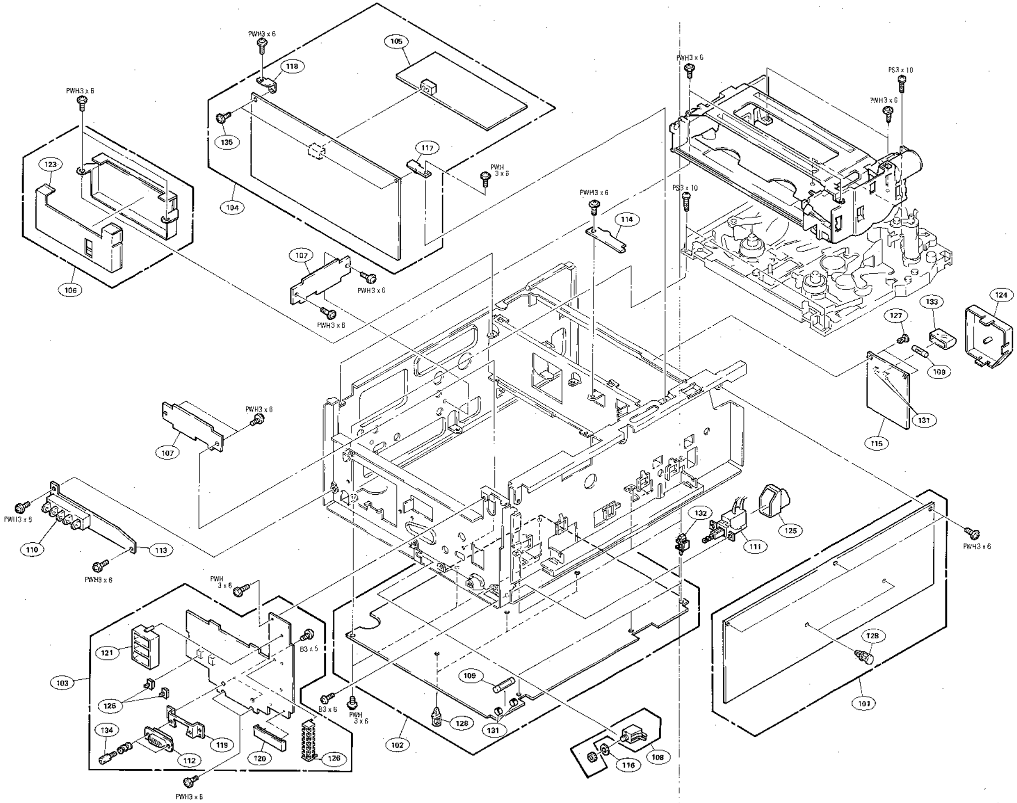
(6) Mechanism Control Block
  Reel motor
  Capstan motor
  Cam Motor Block
  S/T Brake Arm
  Threading Gear Assembly

Ornamental Panel Block


B3 x 6
B3 x 6
5
BVTT 3 x 6
BTP3 x 8
※1
7
B3 x 6
BTP3 x 8
B3 x 6
3
10
BVTT3 x 6
14
16
※2
9
7
6
2
8
22
21
1
18
19
19
18
13
11
12
20
PSW3 x 8
21
23
17
PS3 x 10
15
21
21
17
PS3 x 10

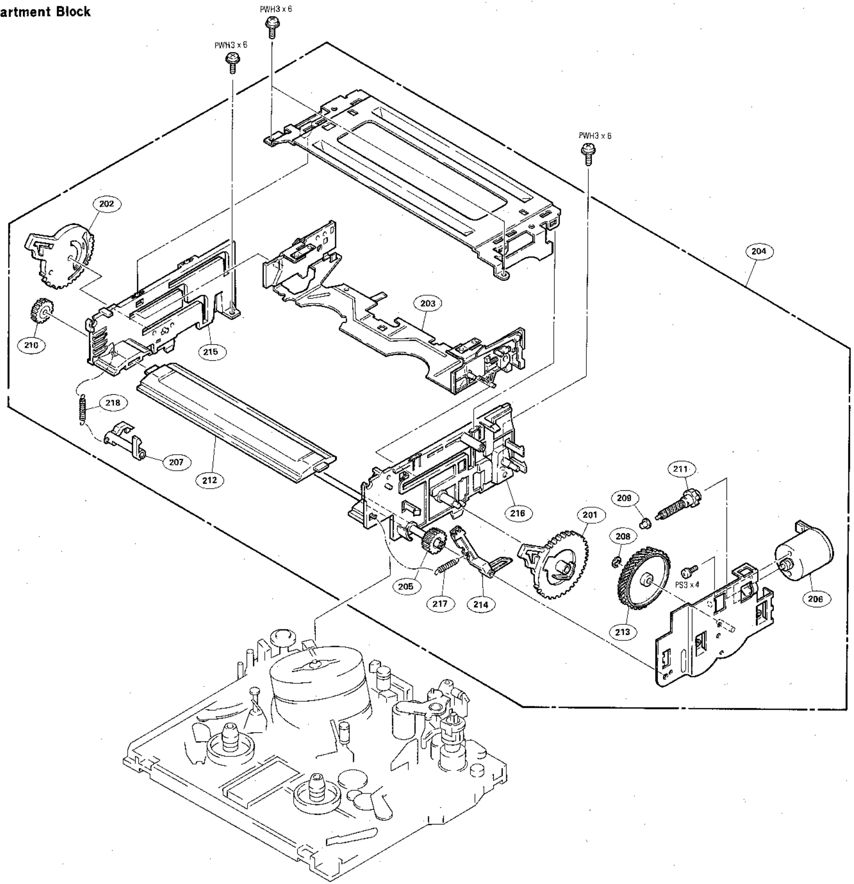
No.	Part No.	SP	Description
1	A-6704-514-A	o	PANEL BLOCK ASSY, FRONT
2	A-6756-188-A	o	MOUNTED CIRCUIT BOARD, CP-151
3	X-2068-004-0	s	TERMINAL ASSY (UP TO S/N 14900)
5	⚠1-413-633-12	s	REGULATOR, SWITCHING
6	1-507-914-11	s	JACK, PIN 6P
7 ※1	1-561-781-11	s	CONNECTOR, BNC (RECEPTACLE)(UP TO S/N 17900)
※2	1-750-089-11	s	CONNECTOR, BNC 3P (S/N 17901 AND HIGHER)
8	⚠1-580-375-11	o	INLET 3P
9	1-580-703-11	s	JACK, PIN 6P
10	2-068-008-00	s	WASHER (UP TO S/N 14900)
11	3-168-161-01	s	BUTTON, EJECT
12	3-168-162-01	s	BUTTON, SET
13	3-168-168-01	o	PANEL, B
14	3-168-181-01	o	PANEL, TOP
15	3-168-182-01	o	CASE, U
16	3-168-462-01	o	COVER, TOP PANEL
17	3-701-191-XX	s	FOOT, RUBBER
18	3-576-921-00	s	SPRING, COMPRESSION
19	3-668-009-02	s	PIN, PUSH BUTTON
20	3-686-084-11	s	PUSH BUTTON
21	3-719-159-01	s	SCREW (M3), (+BW)
22	4-605-946-01	s	COVER, 3P INLET
23	4-879-487-61	s	PUSH BUTTON

Printed Circuit Boards


PWH3 x 6
105
118
PWH3 x 6
135
117
PWH 3 x 6
104
123
106
107
PWH3 x 6
PWH3 x 6
PWH3 x 6
114
PS3 x 10
PWH3 x 6
PS3 x 10
PWH3 x 6
124
133
127
109
131
115
107
PWH3 x 8
PWH3 x 6
110
113
PWH3 x 6
PWH 3 x 6
B3 x 5
121
103
126
134
112
119
120
126
PWH3 x 6
B3 x 6
PWH 3 x 6
102
109
128
131
132
111
125
108
116
128
101
PWH3 x 6

No.	Part No.	SP	Description
101	A-6713-421-B	o	MOUNTED CIRCUIT BOARD, AFM-10
102	A-6717-608-B	o	MOUNTED CIRCUIT BOARD, SS-47A
103	A-6717-609-A	o	MOUNTED CIRCUIT BOARD, KY-194A
104	A-6727-316-A	o	MOUNTED CIRCUIT BOARD, VO-27
105	A-6726-317-A	o	MOUNTED CIRCUIT BOARD, DL-44
106	A-6727-315-B	o	MOUNTED CIRCUIT BOARD, RP-52A
107	A-6756-022-A	o	MOUNTED CIRCUIT BOARD, DR-153
108	1-507-251-XX	s	JACK
109	⚠1-532-203-00	s	FUSE, TIME-LAG, 2A, 250V
110	1-535-943-11	o	TERMINAL, TP
111	⚠1-554-920-11	s	SWITCH, PUSH (AC POWER) (1 KEY)
112	1-563-890-21	s	SOCKET, D-SUB CONNECTOR 9P
113	1-639-704-11	o	PRINTED CIRCUIT BOARD, VR-125
114	1-637-238-12	o	PRINTED CIRCUIT BOARD, TR-68
115	1-637-243-22	o	PRINTED CIRCUIT BOARD, AC-103A
116	2-388-234-01	s	WASHER, FLAT
117	3-168-157-02	o	BRACKET (R), VO
118	3-168-158-01	o	BRACKET (L), VO
119	3-168-160-01	o	BRACKET, 9P
120	3-168-163-01	o	SPACER, LED
121	3-168-164-01	o	HOLDER (LARGE), LED
122	3-168-165-01	o	HOLDER (SMALL), LED
123	3-168-166-01	o	SHIELD (FRONT), RP
124	3-168-180-01	o	COVER, AC PC BOARD
125	3-168-461-01	o	COVER, PW SWITCH
126	X-3165-592-1	s	LEVER ASSY, SW
127	3-646-090-11	s	RIVET, NYLON
128	3-682-057-11	s	SPACER (SMALL)
131	1-533-189-11	s	HOLDER, FUSE
132	4-353-620-02	o	HINGE, PC BOARD
133	4-601-472-00	o	COVER, FUSE
134	4-612-636-01	s	SCREW, CONNECTOR FITTING
135	4-886-821-11	s	SCREW, STIGHT, PTTWH3x6

Cassette Compartment Block


PWH3 x 6
PWH3 x 6
PWH3 x 6
202
204
203
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215
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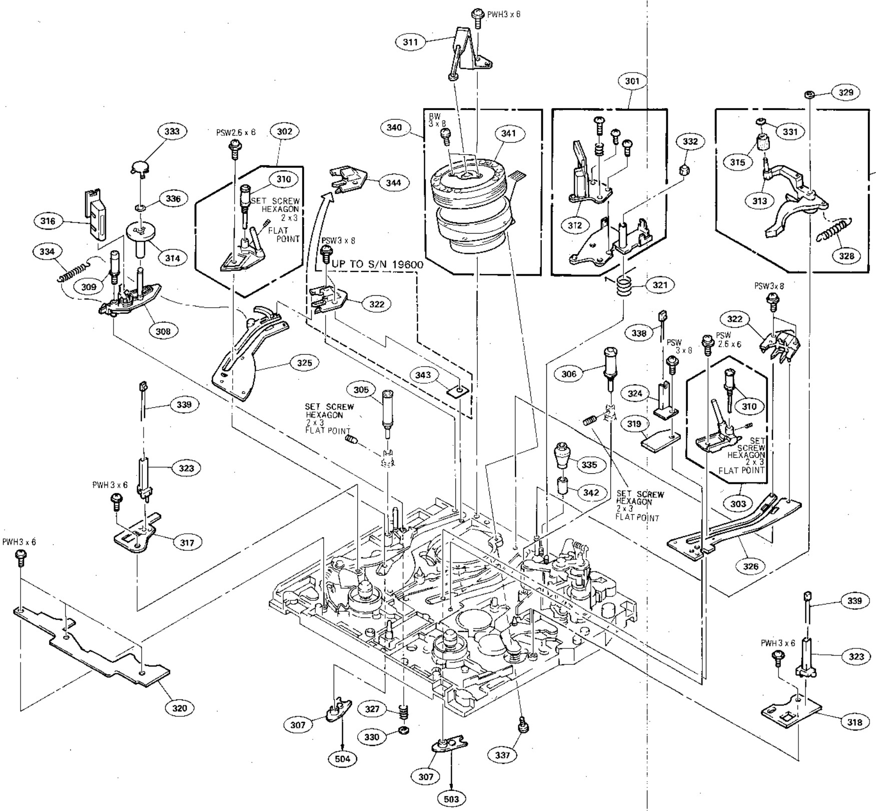
217
214
213
PS3 x 4
206

No.	Part No.	SP	Description
201	A-6751-402-B	s	ARM (RIGHT) BLOCK ASSY, DRIVING
202	A-6751-441-B	s	ARM (LEFT) BLOCK ASSY, DRIVING
203	A-6751-442-E	s	DECK BLOCK ASSY
204	A-6751-446-A	s	FL BLOCK ASSY
205	X-3727-775-2	s	GEAR (RIGHT) ASSY, MIDWAY
206	X-3727-784-1	s	MOTOR ASSY
207	3-168-046-02	s	LEVER, PREVENTION
208	3-696-510-01	s	WASHER, STOPPER (3)
209	3-716-144-02	s	WORM RETAINER
210	3-736-044-02	s	GEAR (LEFT), MIDWAY
211	3-736-100-01	s	GEAR (FL), WORM
212	3-736-162-02	s	RETAINER, CASSETTE
213	3-736-164-01	s	WHEEL (FL), WORM
214	3-736-167-01	s	ARM, DOOR SWITCHING
215	3-736-179-05	s	PLATE, SIDE, LEFT
216	3-736-180-06	s	PLATE, SIDE, RIGHT
217	3-738-285-01	s	SPRING, TENSION
218	3-739-687-01	s	SPRING, TENSION

Head Drum and Tape Run Blocks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301
329
340
BW
3 x 8
341
331
333
PSW2.6 x 6
302
332
315
304
310
SET SCREW
HEXAGON
2 x 3
FLAT
POINT
344
336
313
316
312
314
334
PSW3 x 8
UP TO S/N 19600
328
309
321
322
PSW3x 8
308
322
338
PSW
3 x 8
PSW
2.6 x 6
325
343
306
324
310
339
305
SET SCREW
HEXAGON
2 x 3
FLAT POINT
319
SET
SCREW
HEXAGON
2 x 3
FLAT POINT
323
335
PWH 3 x 6
342
SET SCREW
HEXAGON
2 x 3
FLAT POINT
303
317
PWH3 x 6
326
339
PWH 3 x 6
323
320
327
318
307
330
504
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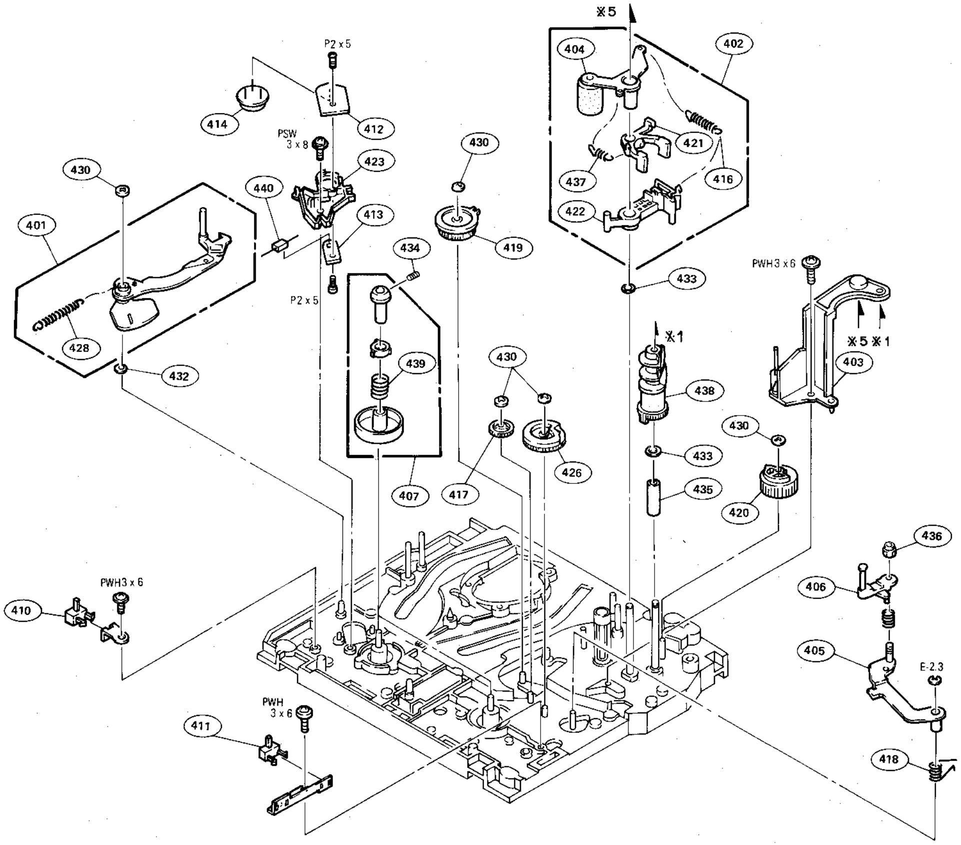
503

No.	Part No.	SP	Description
301	A-6736-092-A	s	HEAD ASSY, AUDIO
302	A-6746-062-B	s	SHUTTLE (LEFT) BLOCK ASSY
303	A-6746-063-B	s	SHUTTLE (RIGHT) BLOCK ASSY
304	A-6747-277-A	o	ROLLER BLOCK ASSY, BC
305	X-3166-793-1	s	ROLLER (S) ASSY, GUIDE No. 1
306	X-3166-792-1	s	GUIDE (S) ASSY, No. 9
307	X-3165-329-1	o	PLATE ASSY, SHUTTLE
308	X-3165-335-2	o	BASE ASSY, STABILIZER
309	X-3165-336-1	s	ROLLER ASSY, No. 2 GUIDE
310	X-3165-337-1	s	ROLLER ASSY, GUIDE
311	X-3165-584-1	s	GROUND ASSY, SHAFT
312	X-3165-588-1	o	HEAD ASSY, ACE
313	X-3166-556-1	o	ARM ASSY, MC ROLLER
314	X-3727-771-1	s	STABILIZER ASSY, TAPE
315	X-3743-515-4	s	ROLLER ASSY, C
316	1-543-695-11	s	HEAD, FULL-ERASE
317	1-637-245-13	o	PRINTED CIRCUIT BOARD, SE-151
318	1-637-246-12	o	PRINTED CIRCUIT BOARD, SE-152
319	1-637-247-11	o	PRINTED CIRCUIT BOARD, LE-80
320	1-637-251-12	o	PRINTED CIRCUIT BOARD, HN-160
321	3-166-987-01	s	SPRING, AH COIL
322	3-166-992-02	s	HOLDER, SHUTTLE
323	3-167-013-02	o	HOLDER, ST SENSOR
324	3-167-028-01	o	HOLDER, LED
325	3-167-034-02	s	RAIL (L), SLIDE
326	3-167-035-05	s	RAIL (R), SLIDE
327	3-305-423-00	s	SPRING, COMPRESSION
328	3-669-979-00	s	SPRING, TENSION
329	3-650-537-00	o	WASHER
330	3-669-465-00	s	WASHER (1.5), STOPPER
331	3-669-595-00	s	WASHER (2), STOPPER
332	3-181-686-01	s	NUT (N3)(3x0.35)
333	3-736-082-01	s	RETAINER, TS THRUST
334	3-736-745-01	s	SPRING
335	3-738-250-01	s	SCREW, AC ADJUSTMENT
336	3-741-925-01	s	RING, RETAINING
337	3-899-248-11	s	SCREW (M3x8)
338	8-719-985-00	s	LED GL451VS1, IR
339	8-729-926-31	s	PHOTOTRANSISTOR PT483F1S
340	8-848-588-11	s	DRUM ASSY DZH-30B-R
341	8-848-569-02	s	UPPER DRUM ASSY, DZR-30-R
342	3-177-109-01	s	SLEEVE
343	3-675-713-91	s	SPACER, VIDEO HEAD (UP TO S/N 19600)
344	3-166-992-11	s	HOLDER, SHUTTLE (S/N 19601 AND HIGHER)

Reel Table and Pinch Roller Blocks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P2 x 5
404
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PSW 3 x 8
423
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430
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401
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422
434
419
P2 x 5
433
PWH3 x 6
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PWH3 x 6
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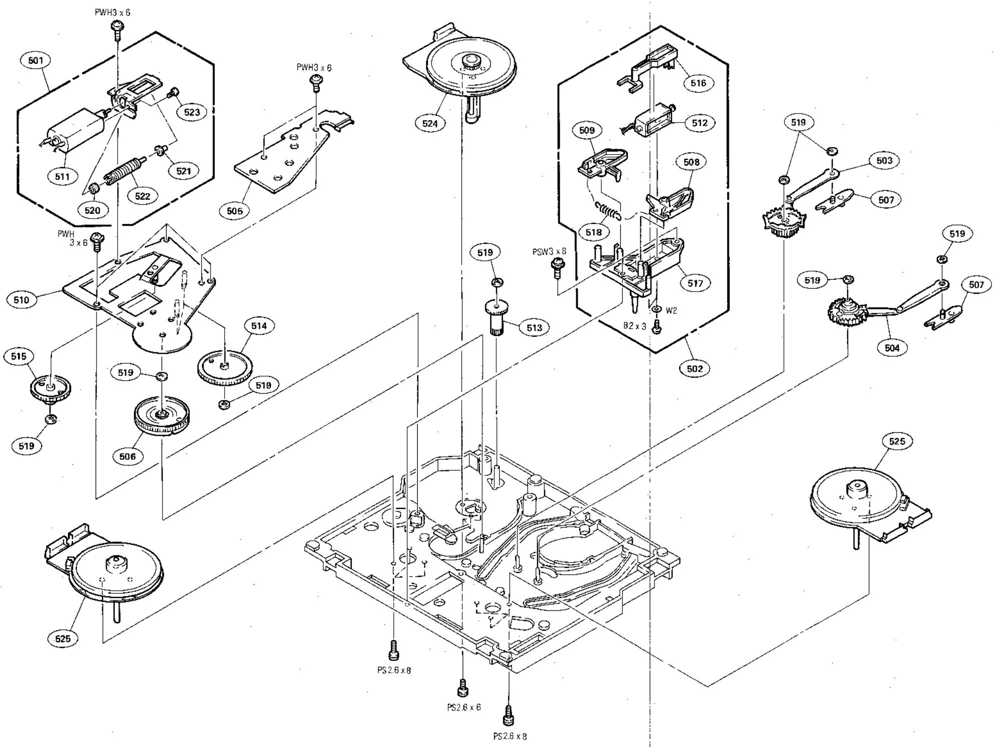
E-2.3
PWH 3 x 6
411
418

No.	Part No.	SP	Description
401	A-6742-071-A	s	ARM ASSY, TENSION REGULATOR
402	A-6750-279-D	s	PINCH ROLLER BLOCK ASSY
403	X-3166-781-1	o	OPENER ASSY, CASSETTE
404	X-3165-332-2	o	ARM ASSY, PINCH ROLLER
405	X-3165-340-1	o	ARM ASSY, RVS
406	X-3165-341-1	s	BASE ASSY, GUIDE
407	X-3165-345-1	s	TABLE ASSY, REEL
410	1-570-711-11	s	SWITCH, MICRO
411	1-571-099-11	s	SWITCH, MICRO
412	1-637-249-11	o	PRINTED CIRCUIT BOARD, SE-159
413	1-637-250-11	o	PRINTED CIRCUIT BOARD, LE-86
414	1-806-232-21	s	DETECTOR MB-1102/S.N
416	3-177-579-01	s	SPRING
417	3-166-989-02	s	GEAR, RVS RELAY
418	3-166-991-01	s	SPRING, RVS COIL
419	3-167-006-01	s	GEAR, FR DRIVING
420	3-167-008-01	s	GEAR, PRESS CAM
421	3-167-011-02	o	CONVEXITY BLOCK
422	3-167-012-02	o	ARM, PRESS LOCK
423	3-167-036-01	o	HOLDER, STD
426	3-166-990-01	s	GEAR, RVS CAM
428	3-490-159-00	s	SPRING, TENSION
430	3-669-596-01	s	WASHER (2.3), STOPPER
432	3-701-439-21	s	WASHER, POLY 3MM DIA., 0.5T
433	3-701-443-21	s	WASHER, POLY 5MM DIA., 0.5T
434	3-701-506-01	s	SET SCREW, DOUBLE POINT 3x4
435	3-703-309-31	s	SPACER (5x18)
436	3-181-686-01	s	NUT (N3)(3x0.35)
437	3-736-046-01	s	SPRING (RETURN), TENSION
438	3-952-182-01	s	CAM, ELEVATOR
439	3-739-621-01	s	SPRING, COMPRESSION
440	8-719-821-22	s	LED TL0221, ORG

Mechanism Control Block


PWH3 x 6
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523
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521
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PWH3 x 6
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PSW3 x 8
B2 x 3
W2
519
503
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504
PWH 3 x 6
510
514
515
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525
525
PS2.6 x 8
PS2.6 x 6
PS2.6 x 8

No.	Part No.	SP	Description
501	A-6737-203-C	s	MOTOR BLOCK ASSY, CAM
502	A-6741-069-A	o	BRAKE BLOCK ASSY, REEL
503	A-6750-281-A	s	GEAR (RIGHT) BLOCK ASSY, LOADING
504	A-6750-282-B	s	GEAR (LEFT) BLOCK ASSY, LOADING
505	A-6755-021-B	o	MOUNTED CIRCUIT BOARD, PTC-41
506	X-3165-327-1	s	GEAR ASSY, MODE
507	X-3165-329-1	o	PLATE ASSY, SHUTTLE
508	X-3165-330-3	s	ARM (S) ASSY, BRAKE
509	X-3165-331-2	s	ARM (T) ASSY, BRAKE
510	X-3165-347-2	o	HOLDER ASSY, DRIVING GEAR
511	X-3165-593-3	o	MOTOR ASSY, CAM
512	1-454-531-11	s	SOLENOID, PLUNGER
513	3-166-988-01	s	GEAR, PINCH COMMUNICATION
514	3-167-001-01	s	GEAR, RELAY
515	3-167-081-01	s	WHEEL, WORM
516	3-167-834-01	o	SLIDER, B
517	3-167-835-01	o	CLAMP, M
518	3-533-253-01	s	SPRING, TENSION
519	3-669-596-01	s	WASHER (2.3), STOPPER
520	3-696-388 01	s	RUBBER, JOINT
521	3-716-144-02	s	RETAINER, WORM
522	3-733-395-01	s	GEAR (CAM), WORM
523	7-627-553-28	s	SCREW +P 2x2.5
524	8-835-350-02	s	MOTOR, DC U-26A
525	8-835-432-01	s	MOTOR, DC SRV-0201A

13-3. ELECTRICAL PARTS LIST

General Purpose Electrical Parts List

CAPACITOR, CHIP CERAMIC

Part No.	SP	Description
1-163-083-00	s	CAP, CHIP CERAMIC 1pF +-0.25pF 50V
1-163-085-00	s	CAP, CHIP CERAMIC 2pF +-0.25pF 50V
1-163-087-00	s	CAP, CHIP CERAMIC 4pF +-0.25pF 50V
1-163-089-00	s	CAP, CHIP CERAMIC 6pF +-0.5pF 50V
1-163-091-00	s	CAP, CHIP CERAMIC 8pF +-0.5pF 50V
1-163-093-00	s	CAP, CHIP CERAMIC 10pF 5% 50V
1-163-097-00	s	CAP, CHIP CERAMIC 15pF 5% 50V
1-163-101-00	s	CAP, CHIP CERAMIC 22pF 5% 50V
1-163-105-00	s	CAP, CHIP CERAMIC 33pF 5% 50V
1-163-109-00	s	CAP, CHIP CERAMIC 47pF 5% 50V
1-163-113-00	s	CAP, CHIP CERAMIC 68pF 5% 50V
1-163-117-00	s	CAP, CHIP CERAMIC 100pF 5% 50V
1-163-121-00	s	CAP, CHIP CERAMIC 150pF 5% 50V
1-163-125-00	s	CAP, CHIP CERAMIC 220pF 5% 50V
1-163-129-00	s	CAP, CHIP CERAMIC 330pF 5% 50V
1-163-133-00	s	CAP, CHIP CERAMIC 470pF 5% 50V
1-163-137-00	s	CAP, CHIP CERAMIC 680pF 5% 50V
1-163-141-00	s	CAP, CHIP CERAMIC 1000pF 5% 50V
1-163-145-00	s	CAP, CHIP CERAMIC 1500pF 10% 50V
1-163-013-00	s	CAP, CHIP CERAMIC 2200pF 10% 50V
1-163-015-00	s	CAP, CHIP CERAMIC 3300pF 10% 50V
1-163-017-00	s	CAP, CHIP CERAMIC 4700pF 10% 50V
1-163-019-00	s	CAP, CHIP CERAMIC 6800pF 10% 50V
1-163-021-00	s	CAP, CHIP CERAMIC 0.01 10% 50V
1-163-023-00	s	CAP, CHIP CERAMIC 0.015 10% 50V
1-163-034-00	s	CAP, CHIP CERAMIC 0.033 50V
1-163-035-00	s	CAP, CHIP CERAMIC 0.047 50V
1-163-036-00	s	CAP, CHIP CERAMIC 0.068 50V
1-163-038-00	s	CAP, CHIP CERAMIC 0.1 50V

CAPACITOR, ELECTROLYTIC

Part No.	SP	Description
1-124-902-00	s	CAP, ELECT 0.47 20% 50V
1-124-791-11	s	CAP, ELECT 1.0 20% 100V
1-124-925-11	s	CAP, ELECT 2.2 20% 100V
1-123-382-00	s	CAP, ELECT 3.3 20% 100V
1-124-927-00	s	CAP, ELECT 4.7 20% 100V
1-123-875-91	s	CAP, ELECT 10 20% 50V
1-124-915-11	s	CAP, ELECT 10 20% 63V
1-124-667-11	s	CAP, ELECT 10 20% 100V
1-124-908-11	s	CAP, ELECT 22 20% 50V
1-124-916-11	s	CAP, ELECT 22 20% 63V
1-124-929-11	s	CAP, ELECT 22 20% 100V
1-124-963-11	s	CAP, ELECT 33 20% 16V
1-124-482-11	s	CAP, ELECT 33 20% 35V
1-124-917-11	s	CAP, ELECT 33 20% 63V
1-124-930-11	s	CAP, ELECT 33 20% 100V
1-124-446-11	s	CAP, ELECT 47 20% 10V
1-124-477-11	s	CAP, ELECT 47 20% 25V
1-124-910-11	s	CAP, ELECT 47 20% 50V
1-124-918-11	s	CAP, ELECT 47 20% 63V
1-124-931-11	s	CAP, ELECT 47 20% 100V
1-124-443-00	s	CAP, ELECT 100 20% 10V
1-126-101-11	s	CAP, ELECT 100 20% 16V
1-124-478-11	s	CAP, ELECT 100 20% 25V
1-124-122-11	s	CAP, ELECT 100 20% 50V
1-124-572-11	s	CAP, ELECT 100 20% 63V
1-123-605-00	s	CAP, ELECT 100 20% 100V
1-124-444-00	s	CAP, ELECT 220 20% 10V
1-124-120-11	s	CAP, ELECT 220 20% 25V
1-124-484-11	s	CAP, ELECT 220 20% 35V
1-124-911-11	s	CAP, ELECT 220 20% 50V
1-124-919-51	s	CAP, ELECT 220 20% 63V
1-124-628-11	s	CAP, ELECT 220 20% 100V
1-124-442-00	s	CAP, ELECT 330 20% 6.3V
1-124-604-00	s	CAP, ELECT 330 20% 10V
1-124-119-00	s	CAP, ELECT 330 20% 16V
1-124-479-11	s	CAP, ELECT 330 20% 25V
1-124-485-11	s	CAP, ELECT 330 20% 35V
1-124-912-11	s	CAP, ELECT 330 20% 50V
1-124-472-11	s	CAP, ELECT 470 20% 10V
1-124-475-11	s	CAP, ELECT 470 20% 16V
1-124-480-11	s	CAP, ELECT 470 20% 25V
1-126-104-11	s	CAP, ELECT 470 20% 35V
1-124-913-11	s	CAP, ELECT 470 20% 50V
1-124-921-11	s	CAP, ELECT 470 20% 63V
1-124-471-00	s	CAP, ELECT 1000 20% 6.3V
1-124-473-11	s	CAP, ELECT 1000 20% 10V
1-124-555-00	s	CAP, ELECT 1000 20% 16V
1-124-557-11	s	CAP, ELECT 1000 20% 25V
1-126-105-11	s	CAP, ELECT 1000 20% 35V
1-124-637-11	s	CAP, ELECT 1000 20% 50V
1-124-922-11	s	CAP, ELECT 1000 20% 63V
1-124-893-11	s	CAP, ELECT 2200 20% 10V
1-124-566-11	s	CAP, ELECT 2200 20% 16V
1-124-563-11	s	CAP, ELECT 2200 20% 25V
1-124-618-11	s	CAP, ELECT 2200 20% 35V
1-124-607-11	s	CAP, ELECT 2200 20% 50V
1-124-621-11	s	CAP, ELECT 3300 20% 6.3V
1-124-887-00	s	CAP, ELECT 3300 20% 16V
1-124-636-00	s	CAP, ELECT 3300 20% 25V
1-124-762-00	s	CAP, ELECT 4700 20% 10V

(CAPACITOR, ELECTROLYTIC)

Part No.	SP	Description
1-124-898-11	s	CAP, ELECT 4700 20% 16V
1-124-564-11	s	CAP, ELECT 4700 20% 25V
1-124-891-11	s	CAP, ELECT 10000 20% 6.3V
1-124-763-00	s	CAP, ELECT 10000 20% 10V
1-124-902-00	s	CAP, ELECT 0.47 20% 50V
1-124-791-11	s	CAP, ELECT 1.0 20% 100V
1-124-925-11	s	CAP, ELECT 2.2 20% 100V
1-123-382-00	s	CAP, ELECT 3.3 20% 100V
1-124-927-00	s	CAP, ELECT 4.7 20% 100V
1-123-875-91	s	CAP, ELECT 10 20% 50V
1-124-908-11	s	CAP, ELECT 22 20% 50V
1-124-963-11	s	CAP, ELECT 33 20% 16V
1-124-482-11	s	CAP, ELECT 33 20% 35V
1-124-917-11	s	CAP, ELECT 33 20% 63V
1-124-446-11	s	CAP, ELECT 47 20% 10V
1-124-477-11	s	CAP, ELECT 47 20% 25V
1-124-910-11	s	CAP, ELECT 47 20% 50V
1-124-443-00	s	CAP, ELECT 100 20% 10V
1-126-101-11	s	CAP, ELECT 100 20% 16V
1-124-478-11	s	CAP, ELECT 100 20% 25V
1-124-122-11	s	CAP, ELECT 100 20% 50V
1-124-444-00	s	CAP, ELECT 220 20% 10V
1-124-120-11	s	CAP, ELECT 220 20% 25V
1-124-484-11	s	CAP, ELECT 220 20% 35V
1-124-911-11	s	CAP, ELECT 220 20% 50V
1-124-442-00	s	CAP, ELECT 330 20% 6.3V
1-124-604-00	s	CAP, ELECT 330 20% 10V
1-124-119-00	s	CAP, ELECT 330 20% 16V
1-124-479-11	s	CAP, ELECT 330 20% 25V
1-124-485-11	s	CAP, ELECT 330 20% 35V
1-124-912-11	s	CAP, ELECT 330 20% 50V
1-124-472-11	s	CAP, ELECT 470 20% 10V
1-124-475-11	s	CAP, ELECT 470 20% 16V
1-124-480-11	s	CAP, ELECT 470 20% 25V
1-126-104-11	s	CAP, ELECT 470 20% 35V
1-124-913-11	s	CAP, ELECT 470 20% 50V

RESISTOR, CHIP

Part No.	SP	Description
1-216-295-00	s	RES, CHIP 0 5% 1/10W
1-216-298-00	s	RES, CHIP 2.2 5% 1/10W
1-216-302-00	s	RES, CHIP 2.7 5% 1/10W
1-216-304-00	s	RES, CHIP 3.3 5% 1/10W
1-216-306-00	s	RES, CHIP 3.9 5% 1/10W
1-216-308-00	s	RES, CHIP 4.7 5% 1/10W
1-216-309-00	s	RES, CHIP 5.6 5% 1/10W
1-216-311-00	s	RES, CHIP 6.8 5% 1/10W
1-216-313-00	s	RES, CHIP 8.2 5% 1/10W
1-216-001-00	s	RES, CHIP 10 5% 1/10W
1-216-003-00	s	RES, CHIP 12 5% 1/10W
1-216-005-00	s	RES, CHIP 15 5% 1/10W
1-216-007-00	s	RES, CHIP 18 5% 1/10W
1-216-009-00	s	RES, CHIP 22 5% 1/10W
1-216-011-00	s	RES, CHIP 27 5% 1/10W
1-216-013-00	s	RES, CHIP 33 5% 1/10W
1-216-015-00	s	RES, CHIP 39 5% 1/10W
1-216-017-00	s	RES, CHIP 47 5% 1/10W
1-216-019-00	s	RES, CHIP 56 5% 1/10W
1-216-021-00	s	RES, CHIP 68 5% 1/10W
1-216-023-00	s	RES, CHIP 82 5% 1/10W
1-216-025-00	s	RES, CHIP 100 5% 1/10W
1-216-027-00	s	RES, CHIP 120 5% 1/10W
1-216-029-00	s	RES, CHIP 150 5% 1/10W
1-216-031-00	s	RES, CHIP 180 5% 1/10W
1-216-033-00	s	RES, CHIP 220 5% 1/10W
1-216-035-00	s	RES, CHIP 270 5% 1/10W
1-216-037-00	s	RES, CHIP 330 5% 1/10W
1-216-039-00	s	RES, CHIP 390 5% 1/10W
1-216-041-00	s	RES, CHIP 470 5% 1/10W
1-216-043-00	s	RES, CHIP 560 5% 1/10W
1-216-045-00	s	RES, CHIP 680 5% 1/10W
1-216-047-00	s	RES, CHIP 820 5% 1/10W
1-216-049-00	s	RES, CHIP 1k 5% 1/10W
1-216-051-00	s	RES, CHIP 1.2k 5% 1/10W
1-216-053-00	s	RES, CHIP 1.5k 5% 1/10W
1-216-055-00	s	RES, CHIP 1.8k 5% 1/10W
1-216-057-00	s	RES, CHIP 2.2k 5% 1/10W
1-216-059-00	s	RES, CHIP 2.7k 5% 1/10W
1-216-061-00	s	RES, CHIP 3.3k 5% 1/10W
1-216-063-00	s	RES, CHIP 3.9k 5% 1/10W
1-216-065-00	s	RES, CHIP 4.7k 5% 1/10W
1-216-067-00	s	RES, CHIP 5.6k 5% 1/10W
1-216-069-00	s	RES, CHIP 6.8k 5% 1/10W
1-216-071-00	s	RES, CHIP 8.2k 5% 1/10W
1-216-073-00	s	RES, CHIP 10k 5% 1/10W
1-216-075-00	s	RES, CHIP 12k 5% 1/10W
1-216-077-00	s	RES, CHIP 15k 5% 1/10W
1-216-079-00	s	RES, CHIP 18k 5% 1/10W
1-216-081-00	s	RES, CHIP 22k 5% 1/10W
1-216-083-00	s	RES, CHIP 27k 5% 1/10W
1-216-085-00	s	RES, CHIP 33k 5% 1/10W
1-216-087-00	s	RES, CHIP 39k 5% 1/10W
1-216-089-00	s	RES, CHIP 47k 5% 1/10W
1-216-091-00	s	RES, CHIP 56k 5% 1/10W
1-216-093-00	s	RES, CHIP 68k 5% 1/10W
1-216-095-00	s	RES, CHIP 82k 5% 1/10W
1-216-097-00	s	RES, CHIP 100k 5% 1/10W
1-216-099-00	s	RES, CHIP 120k 5% 1/10W
1-216-101-00	s	RES, CHIP 150k 5% 1/10W

(RESISTOR, CHIP)

Part No.	SP	Description
1-216-103-00	s	RES, CHIP 180k 5% 1/10W
1-216-105-00	s	RES, CHIP 220k 5% 1/10W
1-216-107-00	s	RES, CHIP 270k 5% 1/10W
1-216-109-00	s	RES, CHIP 330k 5% 1/10W
1-216-111-00	s	RES, CHIP 390k 5% 1/10W
1-216-113-00	s	RES, CHIP 470k 5% 1/10W
1-216-115-00	s	RES, CHIP 560k 5% 1/10W
1-216-117-00	s	RES, CHIP 680k 5% 1/10W
1-216-119-00	s	RES, CHIP 820k 5% 1/10W
1-216-121-00	s	RES, CHIP 1.0M 5% 1/10W
1-216-123-00	s	RES, CHIP 1.2M 5% 1/10W
1-216-125-00	s	RES, CHIP 1.5M 5% 1/10W
1-216-127-00	s	RES, CHIP 1.8M 5% 1/10W
1-216-129-00	s	RES, CHIP 2.2M 5% 1/10W
1-216-131-00	s	RES, CHIP 2.7M 5% 1/10W
1-216-133-00	s	RES, CHIP 3.3M 5% 1/10W

CAPACITOR, MYLAR

Part No.	SP	Description
1-130-471-00	s	CAP, MYLAR 1000pF 5% 50V
1-130-475-00	s	CAP, MYLAR 2200pF 5% 50V
1-130-477-00	s	CAP, MYLAR 3300pF 5% 50V
1-130-483-00	s	CAP, MYLAR 0.01 5% 50V
1-130-486-00	s	CAP, MYLAR 0.018 5% 50V
1-130-487-00	s	CAP, MYLAR 0.022 5% 50V
1-130-495-00	s	CAP, MYLAR 0.1 5% 50V

RESISTOR, CARBON

Part No.	SP	Description
1-249-381-11	s	RES, CARBON 1.0 5% 1/6W
1-249-383-11	s	RES, CARBON 1.5 5% 1/6W
1-249-405-11	s	RES, CARBON 100 5% 1/6W
1-249-408-11	s	RES, CARBON 180 5% 1/6W
1-249-409-11	s	RES, CARBON 220 5% 1/6W
1-249-412-11	s	RES, CARBON 390 5% 1/6W
1-249-413-11	s	RES, CARBON 470 5% 1/6W
1-249-415-11	s	RES, CARBON 680 5% 1/6W
1-249-417-11	s	RES, CARBON 1.0k 5% 1/6W
1-249-421-11	s	RES, CARBON 2.2k 5% 1/6W
1-249-422-11	s	RES, CARBON 2.7k 5% 1/6W
1-249-423-11	s	RES, CARBON 3.3k 5% 1/6W
1-249-425-11	s	RES, CARBON 4.7k 5% 1/6W
1-249-427-11	s	RES, CARBON 6.8k 5% 1/6W
1-249-429-11	s	RES, CARBON 10k 5% 1/6W
1-249-433-11	s	RES, CARBON 22k 5% 1/6W
1-249-435-11	s	RES, CARBON 33k 5% 1/6W
1-249-437-11	s	RES, CARBON 47k 5% 1/6W
1-249-438-11	s	RES, CARBON 56k 5% 1/6W
1-249-441-11	s	RES, CARBON 100k 5% 1/6W

CONNECTOR, CONTACT AWG24-30/AWG32

Part No.	SP	Description
1-506-467-11	o	RESEPTACLE 2P MALE (STRAIGHT TYPE)
1-506-481-11	o	RESEPTACLE 2P MALE (ANGLE TYPE)
1-506-468-11	o	RESEPTACLE 3P MALE (STRAIGHT TYPE)
1-506-482-11	o	RESEPTACLE 3P MALE (ANGLE TYPE)
1-506-469-11	o	RESEPTACLE 4P MALE (STRAIGHT TYPE)
1-506-483-21	o	RESEPTACLE 4P MALE (ANGLE TYPE)
1-506-470-11	o	RESEPTACLE 5P MALE (STRAIGHT TYPE)
1-506-484-11	o	RESEPTACLE 5P MALE (ANGLE TYPE)
1-506-485-11	o	RESEPTACLE 6P MALE (ANGLE TYPE)
1-506-473-11	o	RESEPTACLE 8P MALE (STRAIGHT TYPE)
1-506-474-11	o	RESEPTACLE 9P MALE (STRAIGHT TYPE)
1-506-475-11	o	RESEPTACLE 10P MALE (STRAIGHT TYPE)

INDUCTOR, MICRO

Part No.	SP	Description
1-408-408-00	s	INDUCTOR, MICRO 8.2 5%
1-408-411-00	s	INDUCTOR, MICRO 15 5%
1-408-413-00	s	INDUCTOR, MICRO 22 5%
1-408-416-00	s	INDUCTOR, MICRO 39 5%
1-408-420-00	s	INDUCTOR, MICRO 82 5%

Reference Number Order List

AC-103A BOARD (1-637-243-21, 22)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-243-22	o	PRINTED CIRCUIT BOARD, AC-103A
2pcs	1-533-189-11	s	HOLDER, FUSE
1pc	3-168-180-01	o	COVER, AC PC BOARD
2pcs	3-646-090-11	s	RIVET, NYLON
C1	⚠1-137-106-11	s	FILM 0.022uF 20% 25V
CN903	⚠1-564-321-00	o	CONNECTOR, VH 2P, MALE
CN904	⚠1-564-215-11	o	PIN, CONNECTOR 4P
R1	⚠1-214-937-00	s	METAL 1M 1% 1/2W

AFM-10 BOARD (1-639-702-11)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6713-421-B	o	MOUNTED CIRCUIT BOARD, AFM-10
2pcs	3-682-057-11	s	SPACER (SMALL)
C1	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C2	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C3	1-126-162-11	s	ELECT 3.3uF 20% 50V
C6	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C7	1-130-493-00	s	MYLAR 0.068uF 5% 50V
C9	1-124-144-00	s	ELECT 220uF 20% 16V
C10	1-124-584-00	s	ELECT 100uF 20% 10V
C12	1-126-157-11	s	ELECT 10uF 20% 16V
C13	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C14	1-126-160-11	s	ELECT 1uF 20% 50V
C101	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C102	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C103	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C104	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C106	1-123-369-00	s	ELECT 4.7uF 20% 63V
C107	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C109	1-123-369-00	s	ELECT 4.7uF 20% 63V
C116	1-126-163-11	s	ELECT 4.7MF 20% 50V
C118	1-124-239-00	s	ELECT 6.8uF 20% 25V
C121	1-126-157-11	s	ELECT 10uF 20% 16V
C124	1-124-589-11	s	ELECT 47uF 20% 16V
C125	1-123-356-00	s	ELECT 10uF 20% 16V
C127	1-124-589-11	s	ELECT 47uF 20% 16V
C131	1-126-163-11	s	ELECT 4.7MF 20% 50V
C135	1-126-160-11	s	ELECT 1uF 20% 50V
C136	1-126-163-11	s	ELECT 4.7MF 20% 50V
C137	1-124-234-00	s	ELECT 22uF 20% 16V
C139	1-126-163-11	s	ELECT 4.7MF 20% 50V
C140	1-126-163-11	s	ELECT 4.7MF 20% 50V
C141	1-124-584-00	s	ELECT 100uF 20% 10V
C142	1-131-587-11	s	TANTALUM 0.68MF 5% 35V
C143	1-126-163-11	s	ELECT 4.7MF 20% 50V
C144	1-126-163-11	s	ELECT 4.7MF 20% 50V
C145	1-126-163-11	s	ELECT 4.7MF 20% 50V
C152	1-124-589-11	s	ELECT 47uF 20% 16V
C153	1-126-157-11	s	ELECT 10uF 20% 16V
C154	1-126-157-11	s	ELECT 10uF 20% 16V
C155	1-126-163-11	s	ELECT 4.7MF 20% 50V
C156	1-126-163-11	s	ELECT 4.7MF 20% 50V
C157	1-126-163-11	s	ELECT 4.7MF 20% 50V
C158	1-109-621-00	s	MICA 220PF 1% 500V
C159	1-163-012-00	s	CERAMIC 0.0018uF 5% 50V
C160	1-126-163-11	s	ELECT 4.7MF 20% 50V
C163	1-124-589-11	s	ELECT 47uF 20% 16V
C164	1-124-589-11	s	ELECT 47uF 20% 16V
C201	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C202	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C203	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C204	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C206	1-123-369-00	s	ELECT 4.7uF 20% 63V
C207	1-135-155-21	s	TANTAL CHIP 4.7uF 10% 16V
C209	1-123-369-00	s	ELECT 4.7uF 20% 63V
C214	1-126-163-11	s	ELECT 4.7MF 20% 50V
C216	1-124-239-00	s	ELECT 6.8uF 20% 25V
C221	1-126-157-11	s	ELECT 10uF 20% 16V
C224	1-124-589-11	s	ELECT 47uF 20% 16V

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(AFM-10 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C225	1-123-356-00	s	ELECT 10uF 20% 16V
C231	1-126-163-11	s	ELECT 4.7MF 20% 50V
C235	1-126-160-11	s	ELECT 1uF 20% 50V
C236	1-126-163-11	s	ELECT 4.7MF 20% 50V
C237	1-124-234-00	s	ELECT 22uF 20% 16V
C239	1-126-163-11	s	ELECT 4.7MF 20% 50V
C240	1-126-163-11	s	ELECT 4.7MF 20% 50V
C242	1-131-587-11	s	TANTALUM 0.68MF 5% 35V
C243	1-126-163-11	s	ELECT 4.7MF 20% 50V
C244	1-126-163-11	s	ELECT 4.7MF 20% 50V
C245	1-126-163-11	s	ELECT 4.7MF 20% 50V
C252	1-124-589-11	s	ELECT 47uF 20% 16V
C253	1-126-157-11	s	ELECT 10uF 20% 16V
C254	1-126-157-11	s	ELECT 10uF 20% 16V
C255	1-126-163-11	s	ELECT 4.7MF 20% 50V
C257	1-126-163-11	s	ELECT 4.7MF 20% 50V
C258	1-109-621-00	s	MICA 220PF 1% 500V
C259	1-163-012-00	s	CERAMIC 0.0018uF 5% 50V
C260	1-126-163-11	s	ELECT 4.7MF 20% 50V
C261	1-126-157-11	s	ELECT 10uF 20% 16V
C263	1-124-589-11	s	ELECT 47uF 20% 16V
C264	1-124-589-11	s	ELECT 47uF 20% 16V
C301	1-124-257-00	s	ELECT 2.2uF 20% 50V
C302	1-124-257-00	s	ELECT 2.2uF 20% 50V
C303	1-126-160-11	s	ELECT 1uF 20% 50V
C305	1-126-157-11	s	ELECT 10uF 20% 16V
C307	1-126-157-11	s	ELECT 10uF 20% 16V
C310	1-126-163-11	s	ELECT 4.7MF 20% 50V
C401	1-109-675-11	s	MICA 120PF 5% 500
C402	1-109-675-11	s	MICA 120PF 5% 500
C403	1-136-558-11	s	FILM 0.0039uF 10% 630
C404	1-130-473-00	s	MYLAR 0.0015uF 5% 50V
C406	1-124-589-11	s	ELECT 47uF 20% 16V
C407	1-126-157-11	s	ELECT 10uF 20% 16V
C408	1-124-234-00	s	ELECT 22uF 20% 16V
CN308	1-506-471-11	s	CONNECTOR, 6P, MALE
CN310	1-506-471-11	s	CONNECTOR, 6P, MALE
D2	8-719-104-34	s	DIODE 1S2836
D3	8-719-109-93	s	DIODE RD6.2ES-B2
D4	8-719-400-18	s	DIODE MA152WK
D5	8-719-400-18	s	DIODE MA152WK
D101	8-719-109-96	s	DIODE RD6.8ES-B1
D102	8-719-400-18	s	DIODE MA152WK
D103	8-719-109-81	s	DIODE RD4.7ES-B2
D104	8-719-400-18	s	DIODE MA152WK
D202	8-719-400-18	s	DIODE MA152WK
D203	8-719-109-81	s	DIODE RD4.7ES-B2
D205	8-719-911-19	s	DIODE 1SS119
D206	8-719-911-19	s	DIODE 1SS119
D301	8-719-400-18	s	DIODE MA152WK
D302	8-719-400-18	s	DIODE MA152WK
D305	8-719-109-93	s	DIODE RD6.2ES-B2
D307	8-719-400-18	s	DIODE MA152WK
D401	8-719-110-14	s	DIODE RD9.1ESB3
D402	8-719-109-81	s	DIODE RD4.7ES-B2
D403	8-719-104-10	s	DIODE 1SS99
D404	8-719-400-18	s	DIODE MA152WK
D804	8-719-104-34	s	DIODE 1S2836

(AFM-10 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
FL101	1-236-570-11	s	BPF
FL102	1-239-008-11	s	FILTER, LOW PASS
FL201	1-236-569-11	s	BPF
FL202	1-239-008-11	s	FILTER, LOW PASS
IC1	8-759-420-15	s	IC AN3932S
IC2	8-759-420-18	s	IC AN3972FC
IC3	8-759-982-03	s	IC RC5532DD
IC4	8-759-991-67	s	IC RC78L09UA
IC5	8-752-034-27	s	IC CXA1102P
IC6	8-759-981-90	s	IC RC4558DD
IC7	8-759-981-64	s	IC LM2903DQ
IC8	8-759-140-53	s	IC MC14053BCP
IC9	8-759-340-13	s	IC HD14013BP
IC101	8-759-805-20	s	IC LA7297
IC102	8-759-981-90	s	IC RC4558DD
IC103	8-759-602-49	s	IC M5201P
IC201	8-759-805-20	s	IC LA7297
IC202	8-759-981-90	s	IC RC4558DD
IC203	8-759-602-49	s	IC M5201P
L1	1-410-482-31	s	INDUCTOR 100uH
L2	1-410-482-31	s	INDUCTOR 100uH
L3	1-410-482-31	s	INDUCTOR 100uH
L101	1-410-088-21	s	INDUCTOR 12MMH
L102	1-410-091-31	s	INDUCTOR 22MMH
L201	1-410-088-21	s	INDUCTOR 12MMH
L202	1-410-091-31	s	INDUCTOR 22MMH
L401	1-410-495-31	s	INDUCTOR 1.2MMH
Q3	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q4	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q5	8-729-901-01	s	TRANSISTOR DTC144EK
Q6	8-729-901-01	s	TRANSISTOR DTC144EK
Q7	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q8	8-729-100-66	s	TRANSISTOR 2SC1623
Q9	8-729-901-06	s	TRANSISTOR DTA144EK
Q10	8-729-901-01	s	TRANSISTOR DTC144EK
Q11	8-729-901-06	s	TRANSISTOR DTA144EK
Q12	8-729-901-06	s	TRANSISTOR DTA144EK
Q101	8-729-100-66	s	TRANSISTOR 2SC1623
Q102	8-729-901-01	s	TRANSISTOR DTC144EK
Q109	8-729-202-38	s	TRANSISTOR 2SC3326N
Q110	8-729-100-66	s	TRANSISTOR 2SC1623
Q111	8-729-231-55	s	TRANSISTOR 2SC2878-AB
Q113	8-729-901-06	s	TRANSISTOR DTA144EK
Q114	8-729-100-66	s	TRANSISTOR 2SC1623
Q130	8-729-901-01	s	TRANSISTOR DTC144EK
Q201	8-729-100-66	s	TRANSISTOR 2SC1623
Q202	8-729-901-01	s	TRANSISTOR DTC144EK
Q209	8-729-202-38	s	TRANSISTOR 2SC3326N
Q210	8-729-100-66	s	TRANSISTOR 2SC1623
Q211	8-729-231-55	s	TRANSISTOR 2SC2878-AB
Q213	8-729-901-06	s	TRANSISTOR DTA144EK
Q214	8-729-100-66	s	TRANSISTOR 2SC1623
Q216	8-729-216-22	s	TRANSISTOR 2SA1162
Q230	8-729-901-01	s	TRANSISTOR DTC144EK
Q231	8-729-216-22	s	TRANSISTOR 2SA1162
Q302	8-729-901-01	s	TRANSISTOR DTC144EK
Q303	8-729-202-38	s	TRANSISTOR 2SC3326N

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(AFM-10 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q306	8-729-202-38	s	TRANSISTOR 2SC3326N
Q401	8-729-140-96	s	TRANSISTOR 2SD774-4
Q402	8-729-320-60	s	TRANSISTOR 2SD788-34
Q403	8-729-100-66	s	TRANSISTOR 2SC1623
Q404	8-729-140-93	s	TRANSISTOR 2SB733-34
Q405	8-729-100-66	s	TRANSISTOR 2SC1623
R10	1-215-433-00	s	METAL 3.3K 1% 1/6W
R11	1-215-449-00	s	METAL 15K 1% 1/6W
R12	1-215-461-00	s	METAL 47K 1% 1/6W
R101	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R102	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R106	1-215-449-00	s	METAL 15K 1% 1/6W
R107	1-215-421-00	s	METAL 1K 1% 1/6W
R108	1-215-421-00	s	METAL 1K 1% 1/6W
R110	1-215-447-00	s	METAL 12K 1% 1/6W
R132	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R137	1-215-433-00	s	METAL 3.3K 1% 1/6W
R138	1-215-436-00	s	METAL 4.3K 1% 1/6W
R139	1-215-432-00	s	METAL 3K 1% 1/6W
R141	1-215-460-00	s	METAL 43K 1% 1/6W
R166	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R169	1-216-668-11	s	METAL, CHIP 5.1K 0.5% 1/10W
R191	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R192	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R201	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R202	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R206	1-215-445-00	s	METAL 10K 1% 1/6W
R207	1-215-421-00	s	METAL 1K 1% 1/6W
R208	1-215-421-00	s	METAL 1K 1% 1/6W
R210	1-215-447-00	s	METAL 12K 1% 1/6W
R232	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R237	1-215-433-00	s	METAL 3.3K 1% 1/6W
R238	1-215-436-00	s	METAL 4.3K 1% 1/6W
R239	1-215-432-00	s	METAL 3K 1% 1/6W
R281	1-249-407-11	s	CARBON 150 5% 1/4W
R283	1-249-401-11	s	CARBON 47 5% 1/4W
R291	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R292	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R406	1-249-387-11	s	CARBON 3.3 5% 1/4W
R509	1-216-629-11	s	METAL, CHIP 120 0.5% 1/10W
R609	1-216-629-11	s	METAL, CHIP 120 0.5% 1/10W
RV1	1-238-020-11	s	RES, ADJ, CARBON 100K
RV2	1-238-019-11	s	RES, ADJ, CARBON 47K
RV3	1-238-019-11	s	RES, ADJ, CARBON 47K
RV101	1-238-017-11	s	RES, ADJ, CARBON 22K
RV102	1-238-017-11	s	RES, ADJ, CARBON 22K
RV103	1-230-522-11	s	RES, ADJ, METAL 4.7K
RV104	1-230-522-11	s	RES, ADJ, METAL 4.7K
RV105	1-238-017-11	s	RES, ADJ, CARBON 22K
RV106	1-238-019-11	s	RES, ADJ, CARBON 47K
RV107	1-238-017-11	s	RES, ADJ, CARBON 22K
RV108	1-238-545-11	s	RES, ADJ, CARBON 2.2K
RV110	1-238-546-11	s	RES, ADJ, CARBON 4.7K
RV201	1-238-017-11	s	RES, ADJ, CARBON 22K
RV202	1-238-017-11	s	RES, ADJ, CARBON 22K
RV203	1-230-522-11	s	RES, ADJ, METAL 4.7K
RV204	1-230-522-11	s	RES, ADJ, METAL 4.7K
RV205	1-238-017-11	s	RES, ADJ, CARBON 22K
RV206	1-238-019-11	s	RES, ADJ, CARBON 47K
RV207	1-238-017-11	s	RES, ADJ, CARBON 22K
RV208	1-238-545-11	s	RES, ADJ, CARBON 2.2K
RV210	1-238-546-11	s	RES, ADJ, CARBON 4.7K
RV401	1-238-021-11	s	RES, ADJ, CARBON 220K
RV402	1-238-021-11	s	RES, ADJ, CARBON 220K
T401	1-433-330-11	s	TRANSFORMER, BIAS OSCILLATION

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

AFM-10 BOARD (1-639-702-12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6713-421-B	o	MOUNTED CIRCUIT BOARD, AFM-10
C1	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C2	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C3	1-126-162-11	s	ELECT 3.3uF 20% 50V
C4	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C5	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C6	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C7	1-130-493-00	s	MYLAR 0.068uF 5% 50V
C9	1-126-024-11	s	ELECT 220uF 20% 25V
C10	1-124-584-00	s	ELECT 100uF 20% 10V
C12	1-126-157-11	s	ELECT 10uF 20% 16V
C13	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C14	1-126-160-11	s	ELECT 1uF 20% 50V
C101	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C102	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C103	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C104	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C105	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C106	1-126-163-11	s	ELECT 4.7uF 20% 50V
C107	1-135-155-21	s	TANTALUM, CHIP 4.7uF 10% 16V
C108	1-124-589-11	s	ELECT 47uF 20% 16V
C109	1-126-163-11	s	ELECT 4.7uF 20% 50V
C111	1-126-162-11	s	ELECT 3.3uF 20% 50V
C114	1-126-947-11	s	ELECT 47uF 20% 35V
C115	1-130-475-00	s	MYLAR 0.0022uF 5% 50V
C116	1-126-163-11	s	ELECT 4.7uF 20% 50V
C117	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C118	1-124-239-00	s	ELECT 6.8uF 20% 25V
C119	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C120	1-126-947-11	s	ELECT 47uF 20% 35V
C121	1-126-157-11	s	ELECT 10uF 20% 16V
C122	1-126-934-11	s	ELECT 220uF 20% 16V
C124	1-124-589-11	s	ELECT 47uF 20% 16V
C125	1-126-157-11	s	ELECT 10uF 20% 16V
C126	1-124-589-11	s	ELECT 47uF 20% 16V
C127	1-124-589-11	s	ELECT 47uF 20% 16V
C131	1-126-163-11	s	ELECT 4.7uF 20% 50V
C133	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C135	1-126-160-11	s	ELECT 1uF 20% 50V
C136	1-126-163-11	s	ELECT 4.7uF 20% 50V
C137	1-124-234-00	s	ELECT 22uF 20% 16V
C138	1-126-947-11	s	ELECT 47uF 20% 35V
C139	1-126-163-11	s	ELECT 4.7uF 20% 50V
C140	1-126-163-11	s	ELECT 4.7uF 20% 50V
C141	1-124-584-00	s	ELECT 100uF 20% 10V
C142	1-131-587-11	s	TANTALUM 0.68uF 5% 35V
C143	1-126-163-11	s	ELECT 4.7uF 20% 50V
C144	1-126-163-11	s	ELECT 4.7uF 20% 50V
C145	1-126-163-11	s	ELECT 4.7uF 20% 50V
C149	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C152	1-124-589-11	s	ELECT 47uF 20% 16V
C153	1-126-157-11	s	ELECT 10uF 20% 16V
C154	1-126-157-11	s	ELECT 10uF 20% 16V
C155	1-126-163-11	s	ELECT 4.7uF 20% 50V
C156	1-126-163-11	s	ELECT 4.7uF 20% 50V
C157	1-126-163-11	s	ELECT 4.7uF 20% 50V
C158	1-109-621-00	s	MICA 220PF 1% 500V
C159	1-163-143-00	s	CERAMIC, CHIP 0.0012uF 5% 50V

(AFM-10 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C160	1-126-163-11	s	ELECT 4.7uF 20% 50V
C163	1-124-589-11	s	ELECT 47uF 20% 16V
C164	1-124-589-11	s	ELECT 47uF 20% 16V
C165	1-130-477-00	s	MYLAR 0.0033uF 5% 50V
C201	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C202	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C203	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C204	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C205	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C206	1-126-163-11	s	ELECT 4.7uF 20% 50V
C207	1-135-155-21	s	TANTALUM, CHIP 4.7uF 10% 16V
C208	1-124-589-11	s	ELECT 47uF 20% 16V
C209	1-126-163-11	s	ELECT 4.7uF 20% 50V
C211	1-126-162-11	s	ELECT 3.3uF 20% 50V
C213	1-130-475-00	s	MYLAR 0.0022uF 5% 50V
C214	1-126-163-11	s	ELECT 4.7uF 20% 50V
C215	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C216	1-124-239-00	s	ELECT 6.8uF 20% 25V
C217	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C221	1-126-157-11	s	ELECT 10uF 20% 16V
C222	1-126-934-11	s	ELECT 220uF 20% 16V
C224	1-124-589-11	s	ELECT 47uF 20% 16V
C225	1-126-157-11	s	ELECT 10uF 20% 16V
C226	1-124-589-11	s	ELECT 47uF 20% 16V
C231	1-126-163-11	s	ELECT 4.7uF 20% 50V
C233	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C235	1-126-160-11	s	ELECT 1uF 20% 50V
C236	1-126-163-11	s	ELECT 4.7uF 20% 50V
C237	1-124-234-00	s	ELECT 22uF 20% 16V
C238	1-126-947-11	s	ELECT 47uF 20% 35V
C239	1-126-163-11	s	ELECT 4.7uF 20% 50V
C240	1-126-163-11	s	ELECT 4.7uF 20% 50V
C242	1-131-587-11	s	TANTALUM 0.68uF 5% 35V
C243	1-126-163-11	s	ELECT 4.7uF 20% 50V
C244	1-126-163-11	s	ELECT 4.7uF 20% 50V
C245	1-126-163-11	s	ELECT 4.7uF 20% 50V
C249	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C252	1-124-589-11	s	ELECT 47uF 20% 16V
C253	1-126-157-11	s	ELECT 10uF 20% 16V
C254	1-126-157-11	s	ELECT 10uF 20% 16V
C255	1-126-163-11	s	ELECT 4.7uF 20% 50V
C257	1-126-163-11	s	ELECT 4.7uF 20% 50V
C258	1-109-621-00	s	MICA 220PF 1% 500V
C259	1-163-143-00	s	CERAMIC, CHIP 0.0012uF 5% 50V
C260	1-126-163-11	s	ELECT 4.7uF 20% 50V
C261	1-126-157-11	s	ELECT 10uF 20% 16V
C262	1-126-934-11	s	ELECT 220uF 20% 16V
C263	1-124-589-11	s	ELECT 47uF 20% 16V
C264	1-124-589-11	s	ELECT 47uF 20% 16V
C265	1-130-477-00	s	MYLAR 0.0033uF 5% 50V
C301	1-124-257-00	s	ELECT 2.2uF 20% 50V
C302	1-124-257-00	s	ELECT 2.2uF 20% 50V
C303	1-126-160-11	s	ELECT 1uF 20% 50V
C304	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C305	1-126-157-11	s	ELECT 10uF 20% 16V
C307	1-126-157-11	s	ELECT 10uF 20% 16V
C308	1-126-940-11	s	ELECT 330uF 20% 25V
C310	1-126-163-11	s	ELECT 4.7uF 20% 50V
C401	1-109-675-11	s	MICA 120PF 1% 500V

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(AFM-10 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C402	1-109-675-11	s	MICA 120PF 1% 500V
C403	1-136-558-11	s	FILM 0.0039uF 5% 630V
C404	1-130-473-00	s	MYLAR 0.0015uF 5% 50V
C405	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C406	1-124-589-11	s	ELECT 47uF 20% 16V
C407	1-126-157-11	s	ELECT 10uF 20% 16V
C408	1-124-234-00	s	ELECT 22uF 20% 16V
C507	1-130-486-00	s	MYLAR 0.018uF 10% 50V
C607	1-130-486-00	s	MYLAR 0.018uF 10% 50V
CN302	1-564-002-41	s	CONNECTOR 3P, MALE
CN308	1-506-471-11	s	CONNECTOR 6P, MALE
CN310	1-506-471-11	s	CONNECTOR 6P, MALE
CN311	1-564-009-11	o	CONNECTOR 10P, MALE
D2	8-719-104-34	s	DIODE 1S2835
D3	8-719-109-93	s	DIODE RD6.2ES-B2
D4	8-719-400-18	s	DIODE MA152WK
D5	8-719-400-18	s	DIODE MA152WK
D101	8-719-109-93	s	DIODE RD6.2ES-B2
D102	8-719-400-18	s	DIODE MA152WK
D103	8-719-109-81	s	DIODE RD4.7ES-B2
D104	8-719-400-18	s	DIODE MA152WK
D202	8-719-400-18	s	DIODE MA152WK
D203	8-719-109-81	s	DIODE RD4.7ES-B2
D205	8-719-911-19	s	DIODE 1SS119
D206	8-719-911-19	s	DIODE 1SS119
D301	8-719-400-18	s	DIODE MA152WK
D302	8-719-400-18	s	DIODE MA152WK
D305	8-719-109-93	s	DIODE RD6.2ES-B2
D307	8-719-400-18	s	DIODE MA152WK
D401	8-719-110-14	s	DIODE RD9.1ESB3
D402	8-719-109-81	s	DIODE RD4.7ES-B2
D403	8-719-911-19	s	DIODE 1SS119
D404	8-719-400-18	s	DIODE MA152WK
D804	8-719-104-34	s	DIODE 1S2835
FL101	1-236-570-11	s	FILTER, BAND-PASS 1.4MHz
FL102	1-239-008-11	s	FILTER, LOW-PASS
FL201	1-236-569-11	s	FILTER, BAND-PASS 1.8MHz
FL202	1-239-008-11	s	FILTER, LOW-PASS
IC1	8-759-420-15	s	IC AN3932S
IC2	8-759-420-18	s	IC AN3972FC
IC3	8-759-711-35	s	IC NJM4580D
IC4	8-759-168-19	s	IC TA78L09F-TE12L
IC5	8-752-057-20	s	IC CXA1102P
IC6	8-759-145-58	s	IC UPC4558C
IC7	8-759-987-91	s	IC BA10393
IC8	8-759-140-53	s	IC UPD4053BC
IC9	8-759-000-33	s	IC MC14024BCP
IC101	8-759-805-20	s	IC LA7297
IC102	8-759-145-58	s	IC UPC4558C
IC103	8-759-602-49	s	IC M5201P
IC201	8-759-805-20	s	IC LA7297
IC202	8-759-145-58	s	IC UPC4558C
IC203	8-759-602-49	s	IC M5201P
L2	1-410-482-31	s	INDUCTOR 100uH
L3	1-410-482-31	s	INDUCTOR 100uH
L101	1-410-088-11	s	INDUCTOR 12mH
L102	1-410-091-31	s	INDUCTOR 22mH
L201	1-410-088-21	s	INDUCTOR 12mH

(AFM-10 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
L202	1-410-091-31	s	INDUCTOR 22mH
L401	1-410-120-11	s	INDUCTOR 1.2mH
Q3	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q4	8-729-620-02	s	TRANSISTOR 2SA1115-EF
Q5	8-729-901-01	s	TRANSISTOR DTC144EK
Q6	8-729-901-01	s	TRANSISTOR DTC144EK
Q7	8-729-119-76	s	TRANSISTOR 2SA1115P
Q8	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q9	8-729-901-06	s	TRANSISTOR DTA144EK
Q10	8-729-901-01	s	TRANSISTOR DTC144EK
Q11	8-729-901-06	s	TRANSISTOR DTA144EK
Q12	8-729-901-06	s	TRANSISTOR DTA144EK
Q101	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q102	8-729-901-01	s	TRANSISTOR DTC144EK
Q109	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q110	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q111	8-729-231-55	s	TRANSISTOR 2SC2878-AB
Q113	8-729-901-06	s	TRANSISTOR DTA144EK
Q114	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q130	8-729-901-01	s	TRANSISTOR DTC144EK
Q201	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q202	8-729-901-01	s	TRANSISTOR DTC144EK
Q209	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q210	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q211	8-729-231-55	s	TRANSISTOR 2SC2878-AB
Q213	8-729-901-06	s	TRANSISTOR DTA144EK
Q214	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q216	8-729-216-22	s	TRANSISTOR 2SA1162
Q230	8-729-901-01	s	TRANSISTOR DTC144EK
Q231	8-729-216-22	s	TRANSISTOR 2SA1162
Q302	8-729-901-01	s	TRANSISTOR DTC144EK
Q303	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q306	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q401	8-729-140-98	s	TRANSISTOR 2SD773-3
Q402	8-729-320-60	s	TRANSISTOR 2SD788-34
Q403	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q404	8-729-140-93	s	TRANSISTOR 2SB733-34
Q405	8-729-230-49	s	TRANSISTOR 2SC2712-YG
R10	1-215-433-00	s	METAL 3.3K 1% 1/6W
R11	1-215-449-00	s	METAL 15K 1% 1/6W
R12	1-215-461-00	s	METAL 47K 1% 1/6W
R13	1-249-429-11	s	CARBON 10K 5% 1/4W
R101	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R102	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R106	1-215-449-00	s	METAL 15K 1% 1/6W
R107	1-215-445-00	s	METAL 10K 1% 1/6W
R108	1-215-447-00	s	METAL 12K 1% 1/6W
R110	1-215-447-00	s	METAL 12K 1% 1/6W
R132	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R137	1-215-433-00	s	METAL 3.3K 1% 1/6W
R138	1-215-436-00	s	METAL 4.3K 1% 1/6W
R139	1-215-432-00	s	METAL 3K 1% 1/6W
R141	1-215-460-00	s	METAL 43K 1% 1/6W
R166	1-216-682-11	s	METAL, CHIP 20K 0.5% 1/10W
R169	1-216-668-11	s	METAL, CHIP 5.1K 0.5% 1/10W
R174	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R191	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R192	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(AFM-10 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R193	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R194	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R201	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R202	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R206	1-215-445-00	s	METAL 10K 1% 1/6W
R207	1-215-445-00	s	METAL 10K 1% 1/6W
R208	1-215-447-00	s	METAL 12K 1% 1/6W
R210	1-215-447-00	s	METAL 12K 1% 1/6W
R232	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R237	1-215-433-00	s	METAL 3.3K 1% 1/6W
R238	1-215-436-00	s	METAL 4.3K 1% 1/6W
R239	1-215-432-00	s	METAL 3K 1% 1/6W
R274	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R281	1-249-407-11	s	CARBON 150 5% 1/4W
R283	1-249-401-11	s	CARBON 47 5% 1/4W
R291	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R292	1-216-662-11	s	METAL, CHIP 3K 0.5% 1/10W
R293	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R294	1-216-673-11	s	METAL, CHIP 8.2K 0.5% 1/10W
R403	1-249-381-11	s	CARBON 1 5% 1/4W
R404	1-249-381-11	s	CARBON 1 5% 1/4W
R405	1-249-429-11	s	CARBON 10K 5% 1/4W
R406	1-249-387-11	s	CARBON 3.3 5% 1/4W
R509	1-216-629-11	s	METAL, CHIP 120 0.5% 1/10W
R609	1-216-629-11	s	METAL, CHIP 120 0.5% 1/10W
RV1	1-238-020-11	s	RES, ADJ CARBON 100K
RV2	1-238-019-11	s	RES, ADJ CARBON 47K
RV3	1-238-019-11	s	RES, ADJ CARBON 47K
RV101	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV102	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV103	1-230-522-11	s	RES, ADJ METAL 4.7K
RV104	1-237-723-11	s	RES, ADJ CARBON 4.7K
RV105	1-241-631-11	s	RES, ADJ CARBON 22K
RV106	1-238-019-11	s	RES, ADJ CARBON 47K
RV107	1-241-631-11	s	RES, ADJ CARBON 22K
RV108	1-241-120-11	s	RES, ADJ METAL 2.2K
RV110	1-241-121-11	s	RES, ADJ METAL 4.7K
RV201	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV202	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV203	1-230-522-11	s	RES, ADJ METAL 4.7K
RV204	1-237-723-11	s	RES, ADJ CARBON 4.7K
RV205	1-241-631-11	s	RES, ADJ CARBON 22K
RV206	1-238-019-11	s	RES, ADJ CARBON 47K
RV207	1-241-631-11	s	RES, ADJ CARBON 22K
RV208	1-241-120-11	s	RES, ADJ METAL 2.2K
RV210	1-241-121-11	s	RES, ADJ METAL 4.7K
RV401	1-238-019-11	s	RES, ADJ CARBON 47K
RV402	1-238-019-11	s	RES, ADJ CARBON 47K
T401	1-433-330-11	s	TRANSFORMER, BIAS OSCILLATION

CP-151 BOARD (1-639-703-11)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6756-188-A	o	MOUNTED CIRCUIT BOARD, CP-151
C101	1-124-584-00	s	ELECT 100uF 20% 10V
C102	1-126-163-11	s	ELECT 4.7MF 20% 50V
C103	1-126-163-11	s	ELECT 4.7MF 20% 50V
C104	1-126-163-11	s	ELECT 4.7MF 20% 50V
C105	1-126-163-11	s	ELECT 4.7MF 20% 50V
C106	1-126-157-11	s	ELECT 10uF 20% 16V
C107	1-126-157-11	s	ELECT 10uF 20% 16V
C402	1-126-154-11	s	ELECT 47uF 20% 6.3V
C403	1-161-375-00	s	CERAMIC 0.0022uF 20% 50V
C501	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C502	1-124-589-11	s	ELECT 47uF 20% 16V
C503	1-124-584-00	s	ELECT 100uF 20% 10V
CN510	1-507-914-11	s	JACK, PIN 6P
CN511	1-580-703-11	s	JACK, PIN 6P
D101	8-719-109-93	s	DIODE RD6.2ES-B2
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D304	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
D306	8-719-911-19	s	DIODE 1SS119
D401	8-719-911-19	s	DIODE 1SS119
D402	8-719-911-19	s	DIODE 1SS119
IC101	8-759-701-97	s	IC NJM4562M
IC102	8-759-701-97	s	IC NJM4562M
IC201	8-759-981-68	s	IC LM2903S
IC202	8-759-981-68	s	IC LM2903S
L501	1-410-482-31	s	INDUCTOR 100uH
Q501	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
R405	1-247-897-11	s	CARBON 560K 5% 1/4W
R407	1-249-426-11	s	CARBON 5.6K 5% 1/4W
R408	1-249-431-11	s	CARBON 15K 5% 1/4W
R411	1-247-903-00	s	CARBON 1M 5% 1/4W
R501	1-249-399-11	s	CARBON 33 5% 1/4W
R523	1-215-394-00	s	METAL 75 1% 1/6W
RY401	1-515-614-11	s	RELAY
S101	1-553-510-00	s	SWITCH, SLIDE
S102	1-570-756-11	s	SWITCH, SLIDE
S503	1-570-145-11	s	SWITCH, SLIDE

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

CP-151 BOARD (1-639-703-12, 13)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6756-188-A	o	MOUNTED CIRCUIT BOARD, CP-151
C101	1-124-584-00	s	ELECT 100uF 20% 10V
C102	1-126-163-11	s	ELECT 4.7uF 20% 50V
C103	1-126-163-11	s	ELECT 4.7uF 20% 50V
C104	1-126-163-11	s	ELECT 4.7uF 20% 50V
C105	1-126-163-11	s	ELECT 4.7uF 20% 50V
C106	1-126-157-11	s	ELECT 10uF 20% 16V
C107	1-126-157-11	s	ELECT 10uF 20% 16V
C402	1-126-154-11	s	ELECT 47uF 20% 6.3V
C403	1-161-375-00	s	CERAMIC 0.0022uF 20% 50V
C501	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C502	1-124-589-11	s	ELECT 47uF 20% 16V
C503	1-124-584-00	s	ELECT 100uF 20% 10V
CN505	1-564-013-11	o	CONNECTOR 3P, MALE
CN510	1-507-914-11	s	JACK, 6-PHONE, FEMALE
CN511	1-580-703-11	s	JACK, 6-PHONE, FEMALE
CN513	1-750-089-11	s	CONNECTOR, 3-BNC, FEMALE
D101	8-719-109-93	s	DIODE RD6.2ES-B2
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-911-19	s	DIODE 1SS119
D304	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
D306	8-719-911-19	s	DIODE 1SS119
D401	8-719-911-19	s	DIODE 1SS119
D402	8-719-911-19	s	DIODE 1SS119
IC101	8-759-711-82	s	IC NJM4580E
IC102	8-759-711-82	s	IC NJM4580E
IC201	8-759-700-48	s	IC NJM2903S
IC202	8-759-700-48	s	IC NJM2903S
L501	1-410-482-31	s	INDUCTOR 100uH
Q501	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
R101	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R102	1-249-437-11	s	CARBON 47K 5% 1/4W
R103	1-249-441-11	s	CARBON 100K 5% 1/4W
R104	1-249-437-11	s	CARBON 47K 5% 1/4W
R105	1-249-441-11	s	CARBON 100K 5% 1/4W
R106	1-249-437-11	s	CARBON 47K 5% 1/4W
R107	1-249-441-11	s	CARBON 100K 5% 1/4W
R108	1-249-437-11	s	CARBON 47K 5% 1/4W
R109	1-249-441-11	s	CARBON 100K 5% 1/4W
R403	1-249-435-11	s	CARBON 33K 5% 1/4W
R404	1-249-429-11	s	CARBON 10K 5% 1/4W
R405	1-247-897-11	s	CARBON 560K 5% 1/4W
R406	1-249-429-11	s	CARBON 10K 5% 1/4W
R407	1-249-426-11	s	CARBON 5.6K 5% 1/4W
R408	1-249-431-11	s	CARBON 15K 5% 1/4W
R409	1-249-429-11	s	CARBON 10K 5% 1/4W
R410	1-249-429-11	s	CARBON 10K 5% 1/4W
R411	1-247-903-00	s	CARBON 1M 5% 1/4W
R412	1-249-429-11	s	CARBON 10K 5% 1/4W
R413	1-249-429-11	s	CARBON 10K 5% 1/4W
R501	1-249-399-11	s	CARBON 33 5% 1/4W
R502	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R503	1-249-405-11	s	CARBON 100 5% 1/4W
R504	1-249-433-11	s	CARBON 22K 5% 1/4W
R505	1-249-433-11	s	CARBON 22K 5% 1/4W
R523	1-215-394-00	s	METAL 75 1% 1/6W
RY401	1-515-614-11	s	RELAY
S101	1-553-510-00	s	SWITCH, SLIDE
S102	1-570-756-11	s	SWITCH, SLIDE
S503	1-570-145-11	s	SWITCH, SLIDE

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

DL-44 BOARD (1-638-811-11, 12)

All of the component parts on the DL-44 Board are supplied together with when you order VO-27 Board.

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6726-317-A	o	MOUNTED CIRCUIT BOARD, DL-44
C141	1-163-099-00	s	CERAMIC, CHIP 18PF 5% 50V
C143	1-124-589-11	s	ELECT 47uF 20% 16V
C145	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C147	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C148	1-124-589-11	s	ELECT 47uF 20% 16V
C150	1-124-589-11	s	ELECT 47uF 20% 16V
C152	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C153	1-163-253-11	s	CERAMIC, CHIP 120PF 5% 50V
C155	1-126-163-11	s	ELECT 4.7uF 20% 50V
CF101	1-527-849-00	s	FILTER, BAND-PASS 4.433619MHz
CN101	1-569-383-11	o	SOCKET, 6P, FEMALE
IC102	8-752-321-89	s	IC CXL5003P
L112	1-410-470-11	s	INDUCTOR 10uH
L113	1-410-482-31	s	INDUCTOR 100uH
L114	1-410-482-31	s	INDUCTOR 100uH
L115	1-410-471-11	s	INDUCTOR 12uH
Q114	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q115	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q116	8-729-216-22	s	TRANSISTOR 2SA1162
Q117	8-729-216-22	s	TRANSISTOR 2SA1162
Q118	8-729-216-22	s	TRANSISTOR 2SA1162
R144	1-216-059-00	s	METAL, CHIP 2.7K 5% 1/10W
R150	1-216-033-00	s	METAL, CHIP 220 5% 1/10W
RV106	1-241-119-11	s	RES, ADJ METAL 1K

DR-153 BOARD (1-637-244-11)

Ref. No. or Q'ty	Part No.	SP	Description
C1	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C2	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
C3	1-126-396-11	s	ELECT, CHIP 47uF 20% 16V
CN1	1-568-260-21	s	CONNECTOR 9P, MALE
CN2	1-568-260-21	s	CONNECTOR 9P, MALE
CN3	1-568-260-21	s	CONNECTOR 9P, MALE
IC1	8-759-207-46	s	IC TA7262P-LB

HN-160 BOARD (1-637-251-11, 12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-251-12	o	PRINTED CIRCUIT BOARD, HN-160
CN656	1-564-013-11	o	CONNECTOR 3P, MALE
CN658	1-506-487-11	s	CONNECTOR 8P, MALE

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

KY-194A BOARD (1-637-236-11,12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6717-609-A	o	MOUNTED CIRCUIT BOARD, KY-194A
1pc	3-168-160-01	o	BRACKET, 9P
1pc	3-168-165-01	o	HOLDER (SMALL), LED
1pc	3-168-164-01	o	HOLDER (LARGE), LED
1pc	3-168-163-01	o	SPACER, LED
2pcs	7-682-546-04	s	SCREW +B 3X5
1pc	4-612-636-01	s	SCREW, CONNECTOR FITTING
C101	1-124-589-11	s	ELECT 47uF 20% 16V
C102	1-124-589-11	s	ELECT 47uF 20% 16V
C106	1-124-589-11	s	ELECT 47uF 20% 16V
C112	1-163-011-11	s	CERAMIC 0.0015uF 10% 50V
CN154	1-563-890-21	s	CONNECTOR, D-SUB 9P, FEMALE
D101	8-719-400-18	s	DIODE MA152WK
D103	8-719-400-18	s	DIODE MA152WK
D105	8-719-400-18	s	DIODE MA152WK
D106	8-719-400-18	s	DIODE MA152WK
D107	8-719-400-18	s	DIODE MA152WK
D110	8-719-938-67	s	DIODE GL3EG8
D111	8-719-938-67	s	DIODE GL3EG8
D112	8-719-938-67	s	DIODE GL3EG8
D113	8-719-938-67	s	DIODE GL3EG8
D117	8-719-940-99	s	DIODE SLR-34VC3
D118	8-719-946-30	s	DIODE SLR-34DC3
D119	8-719-104-34	s	DIODE 1S2836
D120	8-719-104-34	s	DIODE 1S2836
D121	8-719-940-82	s	DIODE SLR-34MC3
D122	8-719-940-82	s	DIODE SLR-34MC3
D123	8-719-940-99	s	DIODE SLR-34VC3
D124	8-719-940-99	s	DIODE SLR-34VC3
D125	8-719-946-30	s	DIODE SLR-34DC3
D126	8-719-946-30	s	DIODE SLR-34DC3
D127	8-719-940-82	s	DIODE SLR-34MC3
D128	8-719-400-18	s	DIODE MA152WK
IC101	PENDING	s	IC MC68HC05C8
IC102	8-759-245-99	s	IC TD62503F
IC103	8-759-245-99	s	IC TD62503F
ND101	8-719-948-06	s	DIODE LB-202ML
ND102	8-719-948-06	s	DIODE LB-202ML
ND103	8-719-948-06	s	DIODE LB-202ML
Q101	8-729-904-54	s	TRANSISTOR DTB143EK
Q102	8-729-904-54	s	TRANSISTOR DTB143EK
Q103	8-729-904-54	s	TRANSISTOR DTB143EK
Q104	8-729-904-54	s	TRANSISTOR DTB143EK
Q105	8-729-904-54	s	TRANSISTOR DTB143EK
Q106	8-729-904-54	s	TRANSISTOR DTB143EK
Q107	8-729-904-54	s	TRANSISTOR DTB143EK
Q108	8-729-904-54	s	TRANSISTOR DTB143EK
Q109	8-729-904-54	s	TRANSISTOR DTB143EK
Q110	8-729-904-54	s	TRANSISTOR DTB143EK
Q111	8-729-904-54	s	TRANSISTOR DTB143EK
Q112	8-729-904-54	s	TRANSISTOR DTB143EK
Q113	8-729-904-54	s	TRANSISTOR DTB143EK
Q114	8-729-216-22	s	TRANSISTOR 2SA1162
Q115	8-729-901-01	s	TRANSISTOR DTC144EK
Q116	8-729-901-06	s	TRANSISTOR DTA144EK
Q117	8-729-100-66	s	TRANSISTOR 2SC1623
Q118	8-729-216-22	s	TRANSISTOR 2SA1162
Q119	8-729-901-01	s	TRANSISTOR DTC144EK
Q120	8-729-901-04	s	TRANSISTOR DTA114EK
Q121	8-729-100-66	s	TRANSISTOR 2SC1623
S101	1-570-472-11	s	SWITCH, KEY BOARD
S102	1-570-472-11	s	SWITCH, KEY BOARD
S103	1-570-472-11	s	SWITCH, KEY BOARD
S104	1-570-472-11	s	SWITCH, KEY BOARD
S105	1-570-472-11	s	SWITCH, KEY BOARD
S106	1-570-835-11	s	SWITCH, SLIDE
S107	1-570-835-11	s	SWITCH, SLIDE
X101	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

KY-194A BOARD (1-637-236-13)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6717-609-A	o	MOUNTED CIRCUIT BOARD, KY-194A
1pc	3-168-160-01	o	BRACKET, 9P
1pc	3-168-165-01	o	HOLDER (SMALL), LED
1pc	3-168-164-01	o	HOLDER (LARGE), LED
1pc	3-168-163-01	o	SPACER, LED
2pcs	7-685-870-09	s	SCREW +BVTT 3X5 (S)
1pc	4-612-636-01	s	SCREW, CONNECTOR FITTING
C101	1-124-589-11	s	ELECT 47uF 20% 16V
C102	1-124-589-11	s	ELECT 47uF 20% 16V
C106	1-124-589-11	s	ELECT 47uF 20% 16V
C108	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C109	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C110	1-163-133-00	s	CERAMIC, CHIP 470PF 5% 50V
C112	1-163-011-11	s	CERAMIC 0.0015uF 10% 50V
CN154	1-563-890-21	s	CONNECTOR, D-SUB 9P, FEMALE
D101	8-719-400-18	s	DIODE MA152WK
D103	8-719-400-18	s	DIODE MA152WK
D105	8-719-400-18	s	DIODE MA152WK
D106	8-719-400-18	s	DIODE MA152WK
D107	8-719-400-18	s	DIODE MA152WK
D110	8-719-938-67	s	LED GL3EG8, GRN
D111	8-719-938-67	s	LED GL3EG8, GRN
D112	8-719-938-67	s	LED GL3EG8, GRN
D113	8-719-938-67	s	LED GL3EG8, GRN
D117	8-719-940-99	s	LED SLR-34VC3, RED
D118	8-719-946-30	s	DIODE SLR-34DC3
D119	8-719-104-34	s	DIODE 1S2835
D120	8-719-104-34	s	DIODE 1S2835
D121	8-719-940-82	s	LED SLR-34MC3, GRN
D122	8-719-940-82	s	LED SLR-34MC3, GRN
D123	8-719-940-99	s	LED SLR-34VC3, RED
D124	8-719-940-99	s	LED SLR-34VC3, RED
D125	8-719-946-30	s	DIODE SLR-34DC3
D126	8-719-946-30	s	DIODE SLR-34DC3
D127	8-719-940-82	s	LED SLR-34MC3, GRN
D128	8-719-400-18	s	DIODE MA152WK
IC101	8-759-059-25	s	IC MC68HC05C8B-SC99952B
IC102	8-759-245-99	s	IC TD62503F
IC103	8-759-245-99	s	IC TD62503F
ND101	8-719-948-06	s	LED LB-202ML, GRN
ND102	8-719-948-06	s	LED LB-202ML, GRN
ND103	8-719-948-06	s	LED LB-202ML, GRN
Q101	8-729-901-47	s	TRANSISTOR DTA143EK
Q102	8-729-901-47	s	TRANSISTOR DTA143EK
Q103	8-729-901-47	s	TRANSISTOR DTA143EK
Q104	8-729-901-47	s	TRANSISTOR DTA143EK
Q105	8-729-901-47	s	TRANSISTOR DTA143EK
Q106	8-729-901-47	s	TRANSISTOR DTA143EK
Q107	8-729-901-47	s	TRANSISTOR DTA143EK
Q108	8-729-901-47	s	TRANSISTOR DTA143EK
Q109	8-729-901-47	s	TRANSISTOR DTA143EK
Q110	8-729-901-47	s	TRANSISTOR DTA143EK
Q111	8-729-901-47	s	TRANSISTOR DTA143EK
Q112	8-729-901-47	s	TRANSISTOR DTA143EK
Q113	8-729-901-47	s	TRANSISTOR DTA143EK
Q114	8-729-216-22	s	TRANSISTOR 2SA1162

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(KY-194A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q115	8-729-901-01	s	TRANSISTOR DTC144EK
Q116	8-729-901-06	s	TRANSISTOR DTA144EK
Q117	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q118	8-729-216-22	s	TRANSISTOR 2SA1162
Q119	8-729-901-01	s	TRANSISTOR DTC144EK
Q120	8-729-901-04	s	TRANSISTOR DTA114EK
Q121	8-729-230-49	s	TRANSISTOR 2SC2712-YG
S101	1-570-472-11	s	SWITCH, KEYBOARD
S102	1-570-472-11	s	SWITCH, KEYBOARD
S103	1-570-472-11	s	SWITCH, KEYBOARD
S104	1-570-472-11	s	SWITCH, KEYBOARD
S105	1-570-472-11	s	SWITCH, KEYBOARD
S106	1-570-835-11	s	SWITCH, SLIDE
S107	1-570-835-11	s	SWITCH, SLIDE
X101	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

LE-80 BOARD (1-637-247-11)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-247-11	o	PRINTED CIRCUIT BOARD, LE-80
1pc	3-167-028-02	o	HOLDER, D
D1	8-719-985-00	s	LED GL451VS1, INFRARED

LE-86 BOARD (1-637-250-11)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-250-11	o	PRINTED CIRCUIT BOARD, LE-86
D1	8-719-821-22	s	LED TL0221, ORG

PTC-41 BOARD (1-637-252-11, 12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6755-021-B	o	MOUNTED CIRCUIT BOARD, PTC-41
IC1	8-719-939-11	s	PHOTOINTERRUPTER GP-2S09-B
IC2	8-719-939-11	s	PHOTOINTERRUPTER GP-2S09-B
IC3	8-719-939-11	s	PHOTOINTERRUPTER GP-2S09-B

RP-52A BOARD (1-637-253-12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-315-B	o	MOUNTED CIRCUIT BOARD, RP-52A
1pc	3-168-166-01	o	SHIELD (FRONT), RP
C101	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C102	1-126-160-11	s	ELECT 1uF 20% 50V
C103	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C104	1-126-160-11	s	ELECT 1uF 20% 50V
C106	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C107	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C108	1-127-515-11	s	ELECTSOLID 47uF 20% 10V
C109	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C110	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C111	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C112	1-126-157-11	s	ELECT 10uF 20% 16V
C113	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C114	1-126-160-11	s	ELECT 1uF 20% 50V
C115	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C116	1-163-235-11	s	CERAMIC 22PF 5% 50V
C117	1-163-235-11	s	CERAMIC 22PF 5% 50V
C118	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C119	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C120	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C121	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C122	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C123	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C802	1-126-154-11	s	ELECT 47uF 20% 6.3V
C804	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C805	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C806	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C807	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C815	1-163-235-11	s	CERAMIC 22PF 5% 50V
C816	1-124-463-00	s	ELECT 0.1uF 20% 50V
C817	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C818	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C819	1-163-131-00	s	CERAMIC, CHIP 390PF 5% 50V
C820	1-164-161-11	s	CERAMIC, CHIP 0.0022uF 10% 100V
C821	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C822	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C823	1-163-103-00	s	CERAMIC, CHIP 27PF 5% 50V
C824	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C825	1-163-115-00	s	CERAMIC, CHIP 82PF 5% 50V
C827	1-163-263-11	s	CERAMIC 330PF 5% 50V
C828	1-126-154-11	s	ELECT 47uF 20% 6.3V
C831	1-126-154-11	s	ELECT 47uF 20% 6.3V
C833	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C835	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C836	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
CN801	1-563-590-11	o	CONNECTOR, FLEXIBLE 13P
CN802	1-506-490-21	s	PIN, CONNECTOR 11P
CN804	1-564-031-00	o	PIN, CONNECTOR 6P
D101	8-719-400-18	s	DIODE MA152WK
D801	8-719-400-18	s	DIODE MA152WK
D802	8-719-400-18	s	DIODE MA152WK
D803	8-719-400-18	s	DIODE MA152WK
IC101	8-759-320-55	s	IC HA12115MP
IC801	8-759-320-52	s	IC HA118019NT
L101	1-407-169-XX	s	INDUCTOR 100UH
L102	1-407-169-XX	s	INDUCTOR 100UH

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

Ref. No. or Q'ty	Part No.	SP	Description
L801	1-407-169-XX	s	INDUCTOR 100UH
L802	1-408-975-21	s	INDUCTOR 27UH
L803	1-408-970-21	s	INDUCTOR 10UH
L804	1-408-985-21	s	INDUCTOR 180UH
L805	1-407-169-XX	s	INDUCTOR 100UH
L806	1-407-169-XX	s	INDUCTOR 100UH
L807	1-408-979-21	s	INDUCTOR 56UH
L808	1-408-973-21	s	INDUCTOR 18UH
L809	1-408-973-21	s	INDUCTOR 18UH
PS1	⚠1-532-727-11	s	LINK, IC 0.25A
Q101	8-729-216-22	s	TRANSISTOR 2SA1162
Q801	8-729-216-22	s	TRANSISTOR 2SA1162
Q802	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q803	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q804	8-729-901-01	s	TRANSISTOR DTC144EK
Q805	8-729-901-01	s	TRANSISTOR DTC144EK
Q806	8-729-901-01	s	TRANSISTOR DTC144EK
Q850	8-729-301-98	s	TRANSISTOR 2SB1000A-L
Q851	8-729-901-01	s	TRANSISTOR DTC144EK
R105	1-216-304-11	s	METAL 3.3 5% 1/10W
R107	1-216-304-11	s	METAL 3.3 5% 1/10W

RP-52A BOARD (1-637-253-15)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-315-B	o	MOUNTED CIRCUIT BOARD, RP-52A
1pc	3-168-166-01	o	SHIELD (FRONT), RP
C101	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C102	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C103	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C104	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C105	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C106	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C107	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C108	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C109	1-126-160-11	s	ELECT 1uF 20% 50V
C110	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C112	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C113	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C114	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C115	1-126-157-11	s	ELECT 10uF 20% 16V
C116	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C117	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C118	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C119	1-127-515-11	s	ALUMN SOLID 47uF 20% 10V
C120	1-163-011-11	s	CERAMIC 0.0015uF 10% 50V
C121	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C122	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C123	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C124	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C125	1-163-141-00	s	CERAMIC, CHIP 0.001uF 5% 50V
C126	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C128	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C801	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C804	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C808	1-124-589-11	s	ELECT 47uF 20% 16V
C810	1-162-568-11	s	CERAMIC, CHIP 0.33uF 25V
C812	1-124-584-00	s	ELECT 100uF 20% 10V
C814	1-124-584-00	s	ELECT 100uF 20% 10V
C815	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C817	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C819	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C821	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C822	1-163-237-11	s	CERAMIC, CHIP 27PF 5% 50V
C823	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C824	1-163-115-00	s	CERAMIC, CHIP 82PF 5% 50V
C826	1-163-263-11	s	CERAMIC, CHIP 330PF 5% 50V
C827	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C829	1-126-154-11	s	ELECT 47uF 20% 6.3V
C831	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C833	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C834	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
CN801	1-563-590-11	o	CONNECTOR, FPC 13P
CN802	1-506-490-21	s	CONNECTOR 11P, MALE (ANGLE TYPE)
CN803	1-564-013-11	o	CONNECTOR 3P, MALE
CN804	1-564-031-00	o	CONNECTOR 6P, MALE
D801	8-719-400-18	s	DIODE MA152WK
IC101	8-759-320-55	s	IC HA12115MP
IC801	8-759-046-75	s	IC HA118162NT
L101	1-407-169-XX	s	INDUCTOR 100UH
L102	1-407-169-XX	s	INDUCTOR 100UH
L801	1-408-948-00	s	INDUCTOR 220UH
L802	1-407-169-XX	s	INDUCTOR 100UH
L803	1-407-169-XX	s	INDUCTOR 100UH
L804	1-407-169-XX	s	INDUCTOR 100UH
L805	1-408-973-21	s	INDUCTOR 18uH
L806	1-408-975-21	s	INDUCTOR 27uH
L807	1-408-979-21	s	INDUCTOR 56uH
L808	1-408-970-21	s	INDUCTOR 10UH
L809	1-408-973-21	s	INDUCTOR 18uH
L810	1-408-985-21	s	INDUCTOR 180uH
L811	1-407-169-XX	s	INDUCTOR 100UH
PS1	⚠1-532-727-11	s	LINK, IC 0.25A
Q101	8-729-301-98	s	TRANSISTOR 2SB1000A-L
Q102	8-729-901-01	s	TRANSISTOR DTC144EK
Q103	8-729-901-01	s	TRANSISTOR DTC144EK
Q104	8-729-119-76	s	TRANSISTOR 2SA1115P
Q105	8-729-119-78	s	TRANSISTOR 2SC2785-HFE
Q106	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q107	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q108	8-729-202-38	s	TRANSISTOR 2SC3326N
Q109	8-729-901-06	s	TRANSISTOR DTA144EK
Q801	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q802	8-729-216-22	s	TRANSISTOR 2SA1162
Q803	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q804	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q805	8-729-901-06	s	TRANSISTOR DTA144EK
Q806	8-729-301-98	s	TRANSISTOR 2SB1000A-L
Q807	8-729-901-01	s	TRANSISTOR DTC144EK
Q808	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q901	8-729-202-38	s	TRANSISTOR 2SC3326N
Q902	8-729-202-38	s	TRANSISTOR 2SC3326N
R108	1-216-625-11	s	METAL, CHIP 82 0.5% 1/10W
R109	1-215-381-00	s	METAL 22 1% 1/6W
R110	1-215-381-00	s	METAL 22 1% 1/6W
R803	1-216-614-11	s	METAL, CHIP 30 0.50% 1/10W
R805	1-216-614-11	s	METAL, CHIP 30 0.50% 1/10W
R901	1-216-629-11	s	METAL, CHIP 120 0.5% 1/10W
R902	1-216-629-11	s	METAL, CHIP 120 0.5% 1/10W
S1	1-571-275-11	s	SWITCH, SLIDE

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

SE-151 BOARD (1-637-245-11, 12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-245-12	o	PRINTED CIRCUIT BOARD, SE-151
1pc	3-167-013-02	o	HOLDER, ST SENSOR
1pc	8-729-926-31	s	PHOTO TRANSISTOR PT483F1S

SE-151 BOARD (1-637-245-13)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-564-001-11	o	CONNECTOR, 2P, MALE
1pc	1-637-245-13	o	PRINTED CIRCUIT BOARD, SE-151
1pc	3-167-013-02	o	HOLDER, ST SENSOR
Q1	8-729-926-31	s	PHOTO TRANSISTOR PT483F1S

SE-152 BOARD (1-637-246-11,12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-246-12	o	PRINTED CIRCUIT BOARD, SE-152
1pc	3-167-013-02	o	HOLDER, ST SENSOR
Q1	8-729-926-31	s	PHOTO TRANSISTOR PT483F1S

SE-159 BOARD (1-637-249-11)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-249-11	o	PRINTED CIRCUIT BOARD, SE-159

SS-47A BOARD (1-637-239-12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6717-608-B	o	MOUNTED CIRCUIT BOARD, SS-47A
2pcs	1-533-189-11	o	HOLDER, FUSE
1pc	1-566-095-11	s	PIN, BOARD TO BOARD 10P
3pcs	3-682-057-11	s	SPACER (SMALL)
1pc	3-701-947-14	o	LABEL (T2A), FUSE
C102	1-126-103-11	s	ELECT 470uF 20% 16V
C103	1-125-498-11	s	CAP 1.0F
C104	1-161-494-00	s	CERAMIC 0.022uF 25V
C105	1-126-233-11	s	ELECT 22uF 20% 50V
C107	1-126-157-11	s	ELECT 10uF 20% 16V
C108	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C109	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C110	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C111	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C112	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C116	1-124-927-11	s	ELECT 4.7uF 20% 100V
C118	1-126-233-11	s	ELECT 22uF 20% 50V
C120	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C121	1-162-290-31	s	CERAMIC 470PF 10% 50V
C122	1-162-203-31	s	CERAMIC 15PF 5% 50V
C123	1-162-203-31	s	CERAMIC 15PF 5% 50V
C126	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C127	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C131	1-124-903-11	s	ELECT 1uF 20% 50V
C132	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C133	1-161-061-11	s	CERAMIC 0.068uF 10% 25V
C134	1-161-061-11	s	CERAMIC 0.068uF 10% 25V
C136	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C138	1-161-061-11	s	CERAMIC 0.068uF 10% 25V
C140	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C141	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C143	1-161-494-00	s	CERAMIC 0.022uF 25V
C144	1-161-494-00	s	CERAMIC 0.022uF 25V
C145	1-161-494-00	s	CERAMIC 0.022uF 25V
C147	1-161-494-00	s	CERAMIC 0.022uF 25V
C148	1-161-494-00	s	CERAMIC 0.022uF 25V
C149	1-126-157-11	s	ELECT 10uF 20% 16V
C150	1-162-290-31	s	CERAMIC 470PF 10% 50V
C152	1-162-282-31	s	CERAMIC 100PF 10% 50V
C153	1-162-282-31	s	CERAMIC 100PF 10% 50V
C304	1-126-157-11	s	ELECT 10uF 20% 16V
C305	1-126-157-11	s	ELECT 10uF 20% 16V
C311	1-124-034-51	s	ELECT 33uF 20% 16V
C313	1-124-034-51	s	ELECT 33uF 20% 16V
C315	1-124-034-51	s	ELECT 33uF 20% 16V
C317	1-124-034-51	s	ELECT 33uF 20% 16V
C318	1-124-903-11	s	ELECT 1uF 20% 50V
C319	1-124-903-11	s	ELECT 1uF 20% 50V
C322	1-162-288-31	s	CERAMIC 330PF 10% 50V
C323	1-162-286-31	s	CERAMIC 220PF 10% 50V
C324	1-162-290-31	s	CERAMIC 470PF 10% 50V
C326	1-162-290-31	s	CERAMIC 470PF 10% 50V
C329	1-161-377-00	s	CERAMIC 0.0047uF 20% 16V
C332	1-162-290-31	s	CERAMIC 470PF 10% 50V
C335	1-161-377-00	s	CERAMIC 0.0047uF 20% 16V
C341	1-162-210-31	s	CERAMIC 30PF 5% 50V
C342	1-162-210-31	s	CERAMIC 30PF 5% 50V
C343	1-162-290-31	s	CERAMIC 470PF 10% 50V
C344	1-161-494-00	s	CERAMIC 0.022uF 25V

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C345	1-161-494-00	s	CERAMIC 0.022uF 25V
C346	1-161-494-00	s	CERAMIC 0.022uF 25V
C347	1-161-494-00	s	CERAMIC 0.022uF 25V
C348	1-161-494-00	s	CERAMIC 0.022uF 25V
C350	1-161-494-00	s	CERAMIC 0.022uF 25V
C501	1-126-233-11	s	ELECT 22uF 20% 50V
C502	1-161-494-00	s	CERAMIC 0.022uF 25V
C503	1-126-233-11	s	ELECT 22uF 20% 50V
C507	1-126-157-11	s	ELECT 10uF 20% 16V
C508	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C510	1-126-233-11	s	ELECT 22uF 20% 50V
C511	1-126-233-11	s	ELECT 22uF 20% 50V
C512	1-162-286-31	s	CERAMIC 220PF 10% 50V
C513	1-161-377-00	s	CERAMIC 0.0047uF 20% 16V
C514	1-126-233-11	s	ELECT 22uF 20% 50V
C516	1-126-233-11	s	ELECT 22uF 20% 50V
C517	1-124-464-11	s	ELECT 0.22MF 20% 50V
C519	1-162-284-31	s	CERAMIC 150PF 10% 50V
C520	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C521	1-162-283-31	s	CERAMIC 120PF 10% 50V
C522	1-162-219-31	s	CERAMIC 68PF 5% 50V
C523	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C525	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C526	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C528	1-161-494-00	s	CERAMIC 0.022uF 25V
C529	1-161-494-00	s	CERAMIC 0.022uF 25V
C530	1-161-494-00	s	CERAMIC 0.022uF 25V
C531	1-161-494-00	s	CERAMIC 0.022uF 25V
C532	1-126-157-11	s	ELECT 10uF 20% 16V
C533	1-126-157-11	s	ELECT 10uF 20% 16V
C603	1-124-903-11	s	ELECT 1uF 20% 50V
C604	1-162-290-31	s	CERAMIC 470PF 10% 50V
C605	1-162-290-31	s	CERAMIC 470PF 10% 50V
CN100	1-560-898-00	o	PIN, CONNECTOR 10P
CN110	1-506-471-11	s	CONNECTOR, 6P, MALE
CN116	1-506-471-11	s	CONNECTOR, 6P, MALE
CN121	1-506-480-11	s	PIN, CONNECTOR 15P
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119
D104	8-719-200-02	s	DIODE 10E2
D105	8-719-200-02	s	DIODE 10E2
D106	8-719-911-19	s	DIODE 1SS119
D107	8-719-109-93	s	DIODE RD6.2ES-B2
D108	8-719-911-19	s	DIODE 1SS119
D109	8-719-911-19	s	DIODE 1SS119
D112	8-719-109-68	s	DIODE RD3.6ESB1
D113	8-719-911-19	s	DIODE 1SS119
D114	8-719-109-84	s	DIODE RD5.1ESB1
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-109-84	s	DIODE RD5.1ESB1
D304	8-719-911-19	s	DIODE 1SS119
D305	8-719-911-19	s	DIODE 1SS119
D306	8-719-911-19	s	DIODE 1SS119
D307	8-719-911-19	s	DIODE 1SS119
D308	8-719-911-19	s	DIODE 1SS119
D309	8-719-911-19	s	DIODE 1SS119

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D310	8-719-110-14	s	DIODE RD9.1ESB3
D311	8-719-981-00	s	DIODE ERC81-004
D312	8-719-981-00	s	DIODE ERC81-004
D313	8-719-200-02	s	DIODE 10E2
D314	8-719-200-02	s	DIODE 10E2
D315	8-719-911-19	s	DIODE 1SS119
D316	8-719-911-19	s	DIODE 1SS119
D317	8-719-911-19	s	DIODE 1SS119
D318	8-719-160-68	s	DIODE RD18FB2
D319	8-719-911-19	s	DIODE 1SS119
D320	8-719-109-76	s	DIODE RD4.3ESB3
D321	8-719-115-36	s	DIODE RD5.1JSB1
D322	8-719-110-17	s	DIODE RD10ES-B2
D501	8-719-911-19	s	DIODE 1SS119
D502	8-719-911-19	s	DIODE 1SS119
D503	8-719-911-19	s	DIODE 1SS119
D504	8-719-911-19	s	DIODE 1SS119
D505	8-719-911-19	s	DIODE 1SS119
D506	8-719-911-19	s	DIODE 1SS119
D507	8-719-911-19	s	DIODE 1SS119
D508	8-719-911-19	s	DIODE 1SS119
F101	⚠1-532-203-00	s	FUSE, TIME-LAG 2A 250V
IC101	8-752-831-70	s	IC CXP80P116Q-2-028
IC102	8-759-720-81	s	IC M6M80011AP
IC103	8-759-981-96	s	IC RC4560D
IC104	8-759-512-71	s	IC S-8054HNM
IC106	8-759-981-96	s	IC RC4560D
IC107	8-759-981-64	s	IC LM2903DQ
IC108	8-759-135-80	s	IC UPC358C
IC109	8-759-983-45	s	IC BA6238A
IC110	8-759-234-03	s	IC TA8424F
IC111	8-759-512-71	s	IC S-8054HNM
IC301	8-759-135-80	s	IC UPC358C
IC302	8-759-135-80	s	IC UPC358C
IC303	8-759-140-53	s	IC MC14053BCP
IC304	8-759-984-03	s	IC LM339N
IC305	8-759-984-03	s	IC LM339N
IC306	8-759-154-19	s	IC UPD75106CW-184
IC307	8-759-340-13	s	IC HD14013BP
IC308	8-759-045-38	s	IC MC14538BCP
IC310	8-759-135-80	s	IC UPC358C
IC501	8-759-140-53	s	IC MC14053BCP
IC502	8-759-981-90	s	IC RC4558DD
IC503	8-759-140-53	s	IC MC14053BCP
IC601	8-759-981-64	s	IC LM2903DQ
L101	1-410-482-31	s	INDUCTOR 100uH
L301	1-408-519-00	s	COIL, CHOKE
L302	1-408-519-00	s	COIL, CHOKE
L501	1-410-675-31	s	INDUCTOR 120UH
L502	1-410-675-31	s	INDUCTOR 120UH
L504	1-410-482-31	s	INDUCTOR 100uH
PS101	⚠1-532-685-00	s	LINK, IC 0.8A
PS102	⚠1-532-685-00	s	LINK, IC 0.8A
PS103	⚠1-532-637-00	s	LINK, IC 1.0A
Q101	8-729-924-90	s	TRANSISTOR 2SB1370-EF
Q102	8-729-900-89	s	TRANSISTOR DTC144ES

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q103	8-729-900-65	s	TRANSISTOR DTA144ES
Q104	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q105	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q106	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q109	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q110	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q111	8-729-140-96	s	TRANSISTOR 2SD774-4
Q112	8-729-924-90	s	TRANSISTOR 2SB1370-EF
Q113	8-729-924-90	s	TRANSISTOR 2SB1370-EF
Q114	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q115	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q116	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q118	8-729-900-36	s	TRANSISTOR DTC124ES
Q119	8-729-900-89	s	TRANSISTOR DTC144ES
Q301	8-729-900-89	s	TRANSISTOR DTC144ES
Q302	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q303	8-729-900-89	s	TRANSISTOR DTC144ES
Q304	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q305	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q306	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q307	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q308	8-729-804-87	s	TRANSISTOR 2SB1142-T
Q309	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q310	8-729-804-87	s	TRANSISTOR 2SB1142-T
Q311	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q312	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q313	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q314	8-729-320-60	s	TRANSISTOR 2SD788-34
Q315	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q316	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q317	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q318	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q319	8-729-320-60	s	TRANSISTOR 2SD788-34
Q320	8-729-900-89	s	TRANSISTOR DTC144ES
Q321	8-729-900-89	s	TRANSISTOR DTC144ES
Q322	8-729-900-89	s	TRANSISTOR DTC144ES
Q323	8-729-900-89	s	TRANSISTOR DTC144ES
Q324	8-729-900-89	s	TRANSISTOR DTC144ES
Q325	8-729-900-89	s	TRANSISTOR DTC144ES
Q326	8-729-900-89	s	TRANSISTOR DTC144ES
Q327	8-729-900-89	s	TRANSISTOR DTC144ES
Q328	8-729-900-89	s	TRANSISTOR DTC144ES
Q331	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q332	8-729-900-89	s	TRANSISTOR DTC144ES
Q333	8-729-900-89	s	TRANSISTOR DTC144ES
Q501	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q502	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q503	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q504	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q505	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q506	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q507	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q508	8-729-900-63	s	TRANSISTOR DTA124ES
Q509	8-729-900-36	s	TRANSISTOR DTC124ES
Q510	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q511	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q512	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q513	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q514	8-729-119-77	s	TRANSISTOR 2SA1175-FEK

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q515	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q516	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q517	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q518	8-729-119-77	s	TRANSISTOR 2SA1175-FEK
Q519	8-729-900-65	s	TRANSISTOR DTA144ES
Q520	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q521	8-729-900-65	s	TRANSISTOR DTA144ES
Q701	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q702	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q703	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
R114	1-247-903-00	s	CARBON 1M 5% 1/4W
R132	1-247-887-00	s	CARBON 220K 5% 1/4W
R138	1-249-419-11	s	CARBON 1.5K 5% 1/4W
R144	1-247-903-00	s	CARBON 1M 5% 1/4W
R148	1-247-887-00	s	CARBON 220K 5% 1/4W
R173	1-247-887-00	s	CARBON 220K 5% 1/4W
R183	1-247-887-00	s	CARBON 220K 5% 1/4W
R187	1-247-891-00	s	CARBON 330K 5% 1/4W
R191	1-249-406-11	s	CARBON 120 5% 1/4W
R192	1-249-377-11	s	CARBON 0.47 5% 1/4W
R212	1-247-903-00	s	CARBON 1M 5% 1/4W
R213	1-247-903-00	s	CARBON 1M 5% 1/4W
R214	1-247-903-00	s	CARBON 1M 5% 1/4W
R301	1-249-410-11	s	CARBON 270 5% 1/4W
R307	1-247-891-00	s	CARBON 330K 5% 1/4W
R326	1-247-903-00	s	CARBON 1M 5% 1/4W
R330	1-247-903-00	s	CARBON 1M 5% 1/4W
R334	1-247-903-00	s	CARBON 1M 5% 1/4W
R338	1-247-903-00	s	CARBON 1M 5% 1/4W
R355	1-247-895-00	s	CARBON 470K 5% 1/4W
R356	1-247-895-00	s	CARBON 470K 5% 1/4W
R357	1-247-891-00	s	CARBON 330K 5% 1/4W
R373	1-247-895-00	s	CARBON 470K 5% 1/4W
R381	1-216-365-00	s	METAL 0.47 5% 2W
R390	1-247-895-00	s	CARBON 470K 5% 1/4W
R398	1-216-365-00	s	METAL 0.47 5% 2W
R502	1-249-430-11	s	CARBON 12K 5% 1/4W
R509	1-215-466-00	s	METAL 75K 1% 1/6W
R510	1-259-878-11	s	CARBON 1.5M 5% 1/4W
R514	1-259-878-11	s	CARBON 1.5M 5% 1/4W
R523	1-247-895-00	s	CARBON 470K 5% 1/4W
R547	1-249-439-11	s	CARBON 68K 5% 1/4W
R559	1-215-420-00	s	METAL 910 1% 1/6W
R560	1-247-895-00	s	CARBON 470K 5% 1/4W
R562	1-249-428-11	s	CARBON 8.2K 5% 1/4W
R565	1-249-402-11	s	CARBON 56 5% 1/4W
R608	1-247-903-00	s	CARBON 1M 5% 1/4W
R610	1-247-903-00	s	CARBON 1M 5% 1/4W
R701	1-247-887-00	s	CARBON 220K 5% 1/4W
R702	1-247-887-00	s	CARBON 220K 5% 1/4W
R703	1-247-887-00	s	CARBON 220K 5% 1/4W
RB101	1-235-196-00	s	RES BLOCK 100KX8
RB301	1-235-195-00	s	RES BLOCK 10KX8
RV101	1-238-550-11	s	RES, ADJ, CARBON 100K
RV301	1-238-547-11	s	RES, ADJ, CARBON 10K
RV302	1-238-547-11	s	RES, ADJ, CARBON 10K
RV303	1-238-544-11	s	RES, ADJ, CARBON 1K
RV304	1-238-544-11	s	RES, ADJ, CARBON 1K

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
S101	1-570-623-11	s	SWITCH, DIP 8-CKT
X101	1-567-962-11	s	CRYSTAL 8MHz
X301	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

SS-47A BOARD (1-637-239-13)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6717-608-B	o	MOUNTED CIRCUIT BOARD, SS-47A
2pcs	1-533-189-11	s	HOLDER, FUSE
1pc	1-566-095-11	s	CONNECTOR, BB 11P, MALE
3pcs	3-682-057-11	s	SPACER (SMALL)
1pc	3-701-947-14	s	LABEL (T2A), FUSE
C102	1-126-103-11	s	ELECT 470uF 20% 16V
C103	1-125-498-11	s	DOUBLE LAYERS 1F 5.5V
C104	1-161-494-00	s	CERAMIC 0.022uF 25V
C107	1-126-157-11	s	ELECT 10uF 20% 16V
C108	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C109	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C110	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C111	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C112	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C116	1-124-927-11	s	ELECT 4.7uF 20% 100V
C119	1-124-925-11	s	ELECT 2.2uF 20% 100V
C120	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C121	1-162-290-31	s	CERAMIC 470PF 10% 50V
C122	1-162-203-31	s	CERAMIC 15PF 5% 50V
C123	1-162-203-31	s	CERAMIC 15PF 5% 50V
C124	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C125	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C126	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C127	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C129	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C130	1-130-471-00	s	MYLAR 0.001uF 5% 50V
C131	1-124-903-11	s	ELECT 1uF 20% 50V
C132	1-162-294-31	s	CERAMIC 0.001uF 10% 50V
C133	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
C134	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
C136	1-161-051-00	s	CERAMIC 0.01uF 10% 50V
C138	1-161-061-11	s	CERAMIC 0.068uF 10% 50V
C140	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C141	1-161-021-11	s	CERAMIC 0.047uF 10% 25V
C143	1-161-494-00	s	CERAMIC 0.022uF 25V
C144	1-161-494-00	s	CERAMIC 0.022uF 25V
C147	1-161-494-00	s	CERAMIC 0.022uF 25V
C148	1-161-494-00	s	CERAMIC 0.022uF 25V
C149	1-126-157-11	s	ELECT 10uF 20% 16V
C150	1-162-290-31	s	CERAMIC 470PF 10% 50V
C152	1-162-282-31	s	CERAMIC 100PF 10% 50V
C153	1-162-282-31	s	CERAMIC 100PF 10% 50V
C304	1-126-157-11	s	ELECT 10uF 20% 16V
C305	1-126-157-11	s	ELECT 10uF 20% 16V
C307	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C310	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C311	1-124-034-51	s	ELECT 33uF 20% 16V
C312	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C313	1-124-034-51	s	ELECT 33uF 20% 16V
C314	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C315	1-124-034-51	s	ELECT 33uF 20% 16V
C316	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C317	1-124-034-51	s	ELECT 33uF 20% 16V
C318	1-124-903-11	s	ELECT 1uF 20% 50V
C319	1-124-903-11	s	ELECT 1uF 20% 50V
C321	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C322	1-162-288-31	s	CERAMIC 330PF 10% 50V
C323	1-162-286-31	s	CERAMIC 220PF 10% 50V
C324	1-162-290-31	s	CERAMIC 470PF 10% 50V

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C325	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C326	1-162-290-31	s	CERAMIC 470PF 10% 50V
C327	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C329	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
C331	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C332	1-162-290-31	s	CERAMIC 470PF 10% 50V
C333	1-130-495-00	s	MYLAR 0.1uF 5% 50V
C335	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
C337	1-124-556-11	s	ELECT 2200uF 20% 16V
C341	1-162-210-31	s	CERAMIC 30PF 5% 50V
C342	1-162-210-31	s	CERAMIC 30PF 5% 50V
C343	1-162-290-31	s	CERAMIC 470PF 10% 50V
C344	1-161-494-00	s	CERAMIC 0.022uF 25V
C345	1-161-494-00	s	CERAMIC 0.022uF 25V
C346	1-161-494-00	s	CERAMIC 0.022uF 25V
C347	1-161-494-00	s	CERAMIC 0.022uF 25V
C348	1-161-494-00	s	CERAMIC 0.022uF 25V
C350	1-161-494-00	s	CERAMIC 0.022uF 25V
C502	1-161-494-00	s	CERAMIC 0.022uF 25V
C504	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C505	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C506	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C507	1-126-157-11	s	ELECT 10uF 20% 16V
C508	1-130-472-00	s	MYLAR 0.0012uF 5% 50V
C509	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C512	1-162-286-31	s	CERAMIC 220PF 10% 50V
C513	1-161-377-00	s	CERAMIC 0.0047uF 20% 50V
C517	1-124-464-11	s	ELECT 0.22uF 20% 50V
C519	1-162-284-31	s	CERAMIC 150PF 10% 50V
C520	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C521	1-162-283-31	s	CERAMIC 120PF 10% 50V
C522	1-162-219-31	s	CERAMIC 68PF 5% 50V
C523	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C525	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C526	1-161-379-00	s	CERAMIC 0.01uF 20% 25V
C528	1-161-494-00	s	CERAMIC 0.022uF 25V
C529	1-161-494-00	s	CERAMIC 0.022uF 25V
C530	1-161-494-00	s	CERAMIC 0.022uF 25V
C531	1-161-494-00	s	CERAMIC 0.022uF 25V
C532	1-126-157-11	s	ELECT 10uF 20% 16V
C533	1-126-157-11	s	ELECT 10uF 20% 16V
C601	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C602	1-130-483-00	s	MYLAR 0.01uF 5% 50V
C603	1-124-903-11	s	ELECT 1uF 20% 50V
C604	1-162-290-31	s	CERAMIC 470PF 10% 50V
C605	1-162-290-31	s	CERAMIC 470PF 10% 50V
CN100	1-560-898-00	o	CONNECTOR 10P, MALE
CN104	1-564-004-11	o	CONNECTOR 5P, MALE
CN105	1-564-002-41	s	CONNECTOR 3P, MALE
CN106	1-564-001-11	o	CONNECTOR 2P, MALE
CN110	1-506-471-11	s	CONNECTOR 6P, MALE
CN113	1-564-004-11	o	CONNECTOR 5P, MALE
CN116	1-506-471-11	s	CONNECTOR 6P, MALE
CN121	1-506-480-11	s	CONNECTOR 15P, MALE
CN142	1-564-009-11	o	CONNECTOR 10P, MALE
D101	8-719-911-19	s	DIODE 1SS119
D102	8-719-911-19	s	DIODE 1SS119
D103	8-719-911-19	s	DIODE 1SS119

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
D104	8-719-200-02	s	DIODE 10E2
D105	8-719-200-02	s	DIODE 10E2
D106	8-719-911-19	s	DIODE 1SS119
D107	8-719-109-93	s	DIODE RD6.2ES-B2
D108	8-719-911-19	s	DIODE 1SS119
D109	8-719-911-19	s	DIODE 1SS119
D112	8-719-109-68	s	DIODE RD3.6ESB1
D113	8-719-911-19	s	DIODE 1SS119
D114	8-719-109-84	s	DIODE RD5.1ES-B1
D301	8-719-911-19	s	DIODE 1SS119
D302	8-719-911-19	s	DIODE 1SS119
D303	8-719-109-84	s	DIODE RD5.1ES-B1
D308	8-719-911-19	s	DIODE 1SS119
D309	8-719-911-19	s	DIODE 1SS119
D310	8-719-110-14	s	DIODE RD9.1ESB3
D311	8-719-981-00	s	DIODE ERC81-004
D312	8-719-981-00	s	DIODE ERC81-004
D313	8-719-200-02	s	DIODE 10E2
D314	8-719-200-02	s	DIODE 10E2
D315	8-719-911-19	s	DIODE 1SS119
D316	8-719-911-19	s	DIODE 1SS119
D317	8-719-911-19	s	DIODE 1SS119
D318	8-719-160-68	s	DIODE RD18FB2
D319	8-719-911-19	s	DIODE 1SS119
D320	8-719-109-76	s	DIODE RD4.3ES-B3
D321	8-719-114-40	s	DIODE RD6.2JS-B1
D322	8-719-110-17	s	DIODE RD10ES-B2
D501	8-719-911-19	s	DIODE 1SS119
D502	8-719-911-19	s	DIODE 1SS119
D503	8-719-911-19	s	DIODE 1SS119
D504	8-719-911-19	s	DIODE 1SS119
D505	8-719-911-19	s	DIODE 1SS119
D506	8-719-911-19	s	DIODE 1SS119
D507	8-719-911-19	s	DIODE 1SS119
D508	8-719-911-19	s	DIODE 1SS119
F101	⚠1-532-203-00	s	FUSE, TIMELAG 2A 250V
IC101	8-752-842-50	s	IC CXP80116-875Q
IC102	8-759-720-81	s	IC M6M80011AP
IC103	8-759-981-96	s	IC RC4560D
IC104	8-759-512-71	s	IC S-8054HNM
IC106	8-759-981-96	s	IC RC4560D
IC107	8-759-987-91	s	IC BA10393
IC108	8-759-135-80	s	IC UPC358C
IC109	8-759-983-45	s	IC BA6238A
IC110	8-759-234-03	s	IC TA8424F
IC111	8-759-512-71	s	IC S-8054HNM
IC301	8-759-135-80	s	IC UPC358C
IC302	8-759-135-80	s	IC UPC358C
IC303	8-759-140-53	s	IC UPD4053BC
IC304	8-759-984-03	s	IC LM339N
IC305	8-759-984-03	s	IC LM339N
IC306	8-759-154-19	s	IC UPD75106CW-184
IC307	8-759-340-13	s	IC HD14013BP
IC308	8-759-045-38	s	IC MC14538BCP
IC310	8-759-135-80	s	IC UPC358C
IC501	8-759-140-53	s	IC UPD4053BC
IC502	8-759-705-58	s	IC NJM4558D-D
IC503	8-759-140-53	s	IC UPD4053BC

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
IC601	8-759-987-91	s	IC BA10393
L101	1-410-482-31	s	INDUCTOR 100uH
L301	1-408-519-00	s	COIL, CHOKE
L302	1-408-519-00	s	COIL, CHOKE
L501	1-410-675-31	s	INDUCTOR 120uH
L502	1-410-675-31	s	INDUCTOR 120uH
L504	1-410-482-31	s	INDUCTOR 100uH
PS101	⚠1-532-685-00	s	LINK, IC 0.6A
PS102	⚠1-532-685-00	s	LINK, IC 0.6A
PS103	⚠1-532-637-00	s	LINK, IC 1.0A
Q101	8-729-924-90	s	TRANSISTOR 2SB1370-EF
Q102	8-729-900-89	s	TRANSISTOR DTC144ES
Q103	8-729-900-65	s	TRANSISTOR DTA144ES
Q104	8-729-119-76	s	TRANSISTOR 2SA1115P
Q105	8-729-119-76	s	TRANSISTOR 2SA1115P
Q106	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q109	8-729-119-76	s	TRANSISTOR 2SA1115P
Q110	8-729-119-76	s	TRANSISTOR 2SA1115P
Q111	8-729-140-98	s	TRANSISTOR 2SD773-3
Q112	8-729-924-90	s	TRANSISTOR 2SB1370-EF
Q113	8-729-924-90	s	TRANSISTOR 2SB1370-EF
Q114	8-729-119-76	s	TRANSISTOR 2SA1115P
Q115	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q116	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q118	8-729-900-36	s	TRANSISTOR DTC124ES
Q119	8-729-900-89	s	TRANSISTOR DTC144ES
Q301	8-729-900-89	s	TRANSISTOR DTC144ES
Q302	8-729-119-76	s	TRANSISTOR 2SA1115P
Q303	8-729-900-89	s	TRANSISTOR DTC144ES
Q304	8-729-119-76	s	TRANSISTOR 2SA1115P
Q305	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q306	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q307	8-729-119-76	s	TRANSISTOR 2SA1115P
Q308	8-729-804-87	s	TRANSISTOR 2SB1142-T
Q309	8-729-119-76	s	TRANSISTOR 2SA1115P
Q310	8-729-804-87	s	TRANSISTOR 2SB1142-T
Q311	8-729-119-76	s	TRANSISTOR 2SA1115P
Q312	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q313	8-729-119-76	s	TRANSISTOR 2SA1115P
Q314	8-729-320-60	s	TRANSISTOR 2SD788-34
Q315	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q316	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q317	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q318	8-729-119-76	s	TRANSISTOR 2SA1115P
Q319	8-729-320-60	s	TRANSISTOR 2SD788-34
Q320	8-729-900-89	s	TRANSISTOR DTC144ES
Q321	8-729-900-89	s	TRANSISTOR DTC144ES
Q322	8-729-900-89	s	TRANSISTOR DTC144ES
Q323	8-729-900-89	s	TRANSISTOR DTC144ES
Q324	8-729-900-89	s	TRANSISTOR DTC144ES
Q325	8-729-900-89	s	TRANSISTOR DTC144ES
Q326	8-729-900-89	s	TRANSISTOR DTC144ES
Q327	8-729-900-89	s	TRANSISTOR DTC144ES
Q328	8-729-900-89	s	TRANSISTOR DTC144ES
Q331	8-729-119-76	s	TRANSISTOR 2SA1115P
Q332	8-729-900-89	s	TRANSISTOR DTC144ES
Q333	8-729-900-89	s	TRANSISTOR DTC144ES

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
Q501	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q502	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q503	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q504	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q505	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q506	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q507	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q508	8-729-900-63	s	TRANSISTOR DTA124ES
Q509	8-729-900-36	s	TRANSISTOR DTC124ES
Q510	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q511	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q512	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q513	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q514	8-729-119-76	s	TRANSISTOR 2SA1115P
Q515	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q516	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q517	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q518	8-729-119-76	s	TRANSISTOR 2SA1115P
Q519	8-729-900-65	s	TRANSISTOR DTA144ES
Q520	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q521	8-729-900-65	s	TRANSISTOR DTA144ES
Q701	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q702	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q703	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
R1	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R2	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R3	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R4	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R5	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R6	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R7	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R8	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R9	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R10	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R11	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R12	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R13	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R14	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R15	1-216-679-11	s	METAL, CHIP 15K 0.5% 1/10W
R16	1-216-686-11	s	METAL, CHIP 30K 0.5% 1/10W
R101	1-249-429-11	s	CARBON 10K 5% 1/4W
R102	1-249-417-11	s	CARBON 1K 5% 1/4W
R103	1-249-441-11	s	CARBON 100K 5% 1/4W
R104	1-249-437-11	s	CARBON 47K 5% 1/4W
R105	1-249-441-11	s	CARBON 100K 5% 1/4W
R106	1-249-441-11	s	CARBON 100K 5% 1/4W
R107	1-249-441-11	s	CARBON 100K 5% 1/4W
R108	1-249-437-11	s	CARBON 47K 5% 1/4W
R109	1-249-429-11	s	CARBON 10K 5% 1/4W
R111	1-249-429-11	s	CARBON 10K 5% 1/4W
R112	1-249-437-11	s	CARBON 47K 5% 1/4W
R113	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R114	1-247-903-00	s	CARBON 1M 5% 1/4W
R115	1-249-417-11	s	CARBON 1K 5% 1/4W
R116	1-249-417-11	s	CARBON 1K 5% 1/4W
R117	1-249-409-11	s	CARBON 220 5% 1/4W
R118	1-249-417-11	s	CARBON 1K 5% 1/4W
R119	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R122	1-249-425-11	s	CARBON 4.7K 5% 1/4W

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R123	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R126	1-249-429-11	s	CARBON 10K 5% 1/4W
R127	1-249-429-11	s	CARBON 10K 5% 1/4W
R128	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R129	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R130	1-249-417-11	s	CARBON 1K 5% 1/4W
R131	1-249-417-11	s	CARBON 1K 5% 1/4W
R132	1-247-887-00	s	CARBON 220K 5% 1/4W
R133	1-249-429-11	s	CARBON 10K 5% 1/4W
R134	1-249-429-11	s	CARBON 10K 5% 1/4W
R135	1-249-429-11	s	CARBON 10K 5% 1/4W
R136	1-249-433-11	s	CARBON 22K 5% 1/4W
R137	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R138	1-249-419-11	s	CARBON 1.5K 5% 1/4W
R139	1-249-437-11	s	CARBON 47K 5% 1/4W
R140	1-249-437-11	s	CARBON 47K 5% 1/4W
R141	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R144	1-247-903-00	s	CARBON 1M 5% 1/4W
R145	1-249-441-11	s	CARBON 100K 5% 1/4W
R146	1-249-441-11	s	CARBON 100K 5% 1/4W
R147	1-249-441-11	s	CARBON 100K 5% 1/4W
R148	1-247-887-00	s	CARBON 220K 5% 1/4W
R149	1-249-433-11	s	CARBON 22K 5% 1/4W
R150	1-249-433-11	s	CARBON 22K 5% 1/4W
R151	1-249-437-11	s	CARBON 47K 5% 1/4W
R152	1-249-437-11	s	CARBON 47K 5% 1/4W
R153	1-249-437-11	s	CARBON 47K 5% 1/4W
R155	1-249-429-11	s	CARBON 10K 5% 1/4W
R156	1-249-429-11	s	CARBON 10K 5% 1/4W
R157	1-249-429-11	s	CARBON 10K 5% 1/4W
R158	1-249-429-11	s	CARBON 10K 5% 1/4W
R159	1-249-429-11	s	CARBON 10K 5% 1/4W
R160	1-249-429-11	s	CARBON 10K 5% 1/4W
R161	1-249-429-11	s	CARBON 10K 5% 1/4W
R162	1-249-429-11	s	CARBON 10K 5% 1/4W
R163	1-249-441-11	s	CARBON 100K 5% 1/4W
R164	1-249-441-11	s	CARBON 100K 5% 1/4W
R165	1-249-441-11	s	CARBON 100K 5% 1/4W
R166	1-249-405-11	s	CARBON 100 5% 1/4W
R167	1-249-405-11	s	CARBON 100 5% 1/4W
R168	1-249-405-11	s	CARBON 100 5% 1/4W
R169	1-249-417-11	s	CARBON 1K 5% 1/4W
R170	1-249-417-11	s	CARBON 1K 5% 1/4W
R171	1-249-417-11	s	CARBON 1K 5% 1/4W
R172	1-249-433-11	s	CARBON 22K 5% 1/4W
R173	1-247-887-00	s	CARBON 220K 5% 1/4W
R174	1-249-437-11	s	CARBON 47K 5% 1/4W
R175	1-249-437-11	s	CARBON 47K 5% 1/4W
R176	1-249-417-11	s	CARBON 1K 5% 1/4W
R177	1-249-417-11	s	CARBON 1K 5% 1/4W
R178	1-249-429-11	s	CARBON 10K 5% 1/4W
R179	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R180	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R181	1-249-429-11	s	CARBON 10K 5% 1/4W
R182	1-249-433-11	s	CARBON 22K 5% 1/4W
R183	1-247-887-00	s	CARBON 220K 5% 1/4W
R184	1-249-429-11	s	CARBON 10K 5% 1/4W
R185	1-249-417-11	s	CARBON 1K 5% 1/4W
R186	1-249-417-11	s	CARBON 1K 5% 1/4W

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R187	1-247-891-00	s	CARBON 330K 5% 1/4W
R188	1-249-383-11	s	CARBON 1.5 5% 1/4W
R189	1-249-383-11	s	CARBON 1.5 5% 1/4W
R190	1-249-408-11	s	CARBON 180 5% 1/4W
R191	1-249-406-11	s	CARBON 120 5% 1/4W
R192	1-249-377-11	s	CARBON 0.47 5% 1/4W
R193	1-249-383-11	s	CARBON 1.5 5% 1/4W
R194	1-249-413-11	s	CARBON 470 5% 1/4W
R195	1-249-417-11	s	CARBON 1K 5% 1/4W
R196	1-249-417-11	s	CARBON 1K 5% 1/4W
R197	1-249-417-11	s	CARBON 1K 5% 1/4W
R198	1-249-429-11	s	CARBON 10K 5% 1/4W
R199	1-249-433-11	s	CARBON 22K 5% 1/4W
R200	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R201	1-249-441-11	s	CARBON 100K 5% 1/4W
R202	1-249-417-11	s	CARBON 1K 5% 1/4W
R205	1-249-417-11	s	CARBON 1K 5% 1/4W
R206	1-249-417-11	s	CARBON 1K 5% 1/4W
R208	1-249-417-11	s	CARBON 1K 5% 1/4W
R210	1-249-417-11	s	CARBON 1K 5% 1/4W
R211	1-249-429-11	s	CARBON 10K 5% 1/4W
R212	1-247-903-00	s	CARBON 1M 5% 1/4W
R213	1-247-903-00	s	CARBON 1M 5% 1/4W
R214	1-247-903-00	s	CARBON 1M 5% 1/4W
R215	1-249-437-11	s	CARBON 47K 5% 1/4W
R216	1-249-417-11	s	CARBON 1K 5% 1/4W
R217	1-249-417-11	s	CARBON 1K 5% 1/4W
R218	1-249-417-11	s	CARBON 1K 5% 1/4W
R219	1-249-417-11	s	CARBON 1K 5% 1/4W
R220	1-249-417-11	s	CARBON 1K 5% 1/4W
R224	1-249-417-11	s	CARBON 1K 5% 1/4W
R225	1-249-441-11	s	CARBON 100K 5% 1/4W
R301	1-249-410-11	s	CARBON 270 5% 1/4W
R302	1-249-429-11	s	CARBON 10K 5% 1/4W
R303	1-249-429-11	s	CARBON 10K 5% 1/4W
R304	1-249-415-11	s	CARBON 680 5% 1/4W
R305	1-249-435-11	s	CARBON 33K 5% 1/4W
R306	1-249-435-11	s	CARBON 33K 5% 1/4W
R307	1-247-891-00	s	CARBON 330K 5% 1/4W
R308	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R309	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R310	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R311	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R312	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R313	1-249-437-11	s	CARBON 47K 5% 1/4W
R314	1-249-422-11	s	CARBON 2.7K 5% 1/4W
R315	1-249-422-11	s	CARBON 2.7K 5% 1/4W
R316	1-249-441-11	s	CARBON 100K 5% 1/4W
R317	1-249-441-11	s	CARBON 100K 5% 1/4W
R318	1-249-409-11	s	CARBON 220 5% 1/4W
R319	1-249-429-11	s	CARBON 10K 5% 1/4W
R320	1-249-408-11	s	CARBON 180 5% 1/4W
R321	1-249-429-11	s	CARBON 10K 5% 1/4W
R322	1-249-417-11	s	CARBON 1K 5% 1/4W
R324	1-249-409-11	s	CARBON 220 5% 1/4W
R325	1-249-417-11	s	CARBON 1K 5% 1/4W
R326	1-247-903-00	s	CARBON 1M 5% 1/4W
R327	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R328	1-249-423-11	s	CARBON 3.3K 5% 1/4W

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R329	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R330	1-247-903-00	s	CARBON 1M 5% 1/4W
R331	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R332	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R333	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R334	1-247-903-00	s	CARBON 1M 5% 1/4W
R335	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R336	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R337	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R338	1-247-903-00	s	CARBON 1M 5% 1/4W
R339	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R340	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R341	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R342	1-249-438-11	s	CARBON 56K 5% 1/4W
R343	1-249-438-11	s	CARBON 56K 5% 1/4W
R344	1-249-417-11	s	CARBON 1K 5% 1/4W
R345	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R346	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R349	1-249-405-11	s	CARBON 100 5% 1/4W
R350	1-249-405-11	s	CARBON 100 5% 1/4W
R351	1-249-405-11	s	CARBON 100 5% 1/4W
R352	1-249-405-11	s	CARBON 100 5% 1/4W
R353	1-249-441-11	s	CARBON 100K 5% 1/4W
R354	1-249-441-11	s	CARBON 100K 5% 1/4W
R355	1-247-895-00	s	CARBON 470K 5% 1/4W
R356	1-247-895-00	s	CARBON 470K 5% 1/4W
R357	1-247-891-00	s	CARBON 330K 5% 1/4W
R358	1-249-437-11	s	CARBON 47K 5% 1/4W
R359	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R360	1-249-437-11	s	CARBON 47K 5% 1/4W
R361	1-249-437-11	s	CARBON 47K 5% 1/4W
R362	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R363	1-249-433-11	s	CARBON 22K 5% 1/4W
R364	1-249-441-11	s	CARBON 100K 5% 1/4W
R366	1-249-427-11	s	CARBON 6.8K 5% 1/4W
R367	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R368	1-249-409-11	s	CARBON 220 5% 1/4W
R370	1-249-409-11	s	CARBON 220 5% 1/4W
R371	1-249-417-11	s	CARBON 1K 5% 1/4W
R372	1-247-887-00	s	CARBON 220K 5% 1/4W
R373	1-247-895-00	s	CARBON 470K 5% 1/4W
R375	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R376	1-249-441-11	s	CARBON 100K 5% 1/4W
R377	1-249-441-11	s	CARBON 100K 5% 1/4W
R378	1-249-429-11	s	CARBON 10K 5% 1/4W
R379	1-249-429-11	s	CARBON 10K 5% 1/4W
R380	1-249-417-11	s	CARBON 1K 5% 1/4W
R381	1-216-365-00	s	METAL 0.47 5% 2W
R383	1-249-427-11	s	CARBON 6.8K 5% 1/4W
R384	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R385	1-249-409-11	s	CARBON 220 5% 1/4W
R387	1-249-409-11	s	CARBON 220 5% 1/4W
R388	1-249-417-11	s	CARBON 1K 5% 1/4W
R389	1-247-887-00	s	CARBON 220K 5% 1/4W
R390	1-247-895-00	s	CARBON 470K 5% 1/4W
R392	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R393	1-249-441-11	s	CARBON 100K 5% 1/4W
R394	1-249-441-11	s	CARBON 100K 5% 1/4W
R395	1-249-429-11	s	CARBON 10K 5% 1/4W

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R396	1-249-429-11	s	CARBON 10K 5% 1/4W
R397	1-249-417-11	s	CARBON 1K 5% 1/4W
R398	1-216-365-00	s	METAL 0.47 5% 2W
R399	1-249-437-11	s	CARBON 47K 5% 1/4W
R401	1-249-429-11	s	CARBON 10K 5% 1/4W
R402	1-249-429-11	s	CARBON 10K 5% 1/4W
R403	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R404	1-249-438-11	s	CARBON 56K 5% 1/4W
R405	1-249-438-11	s	CARBON 56K 5% 1/4W
R406	1-249-415-11	s	CARBON 680 5% 1/4W
R407	1-249-429-11	s	CARBON 10K 5% 1/4W
R408	1-249-429-11	s	CARBON 10K 5% 1/4W
R409	1-249-429-11	s	CARBON 10K 5% 1/4W
R410	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R411	1-249-438-11	s	CARBON 56K 5% 1/4W
R412	1-249-438-11	s	CARBON 56K 5% 1/4W
R413	1-249-415-11	s	CARBON 680 5% 1/4W
R414	1-249-429-11	s	CARBON 10K 5% 1/4W
R415	1-249-437-11	s	CARBON 47K 5% 1/4W
R416	1-249-429-11	s	CARBON 10K 5% 1/4W
R417	1-249-429-11	s	CARBON 10K 5% 1/4W
R418	1-249-429-11	s	CARBON 10K 5% 1/4W
R419	1-249-429-11	s	CARBON 10K 5% 1/4W
R420	1-249-437-11	s	CARBON 47K 5% 1/4W
R421	1-249-429-11	s	CARBON 10K 5% 1/4W
R422	1-249-417-11	s	CARBON 1K 5% 1/4W
R423	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R424	1-249-437-11	s	CARBON 47K 5% 1/4W
R425	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R426	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R427	1-249-429-11	s	CARBON 10K 5% 1/4W
R501	1-249-429-11	s	CARBON 10K 5% 1/4W
R502	1-249-430-11	s	CARBON 12K 5% 1/4W
R503	1-249-429-11	s	CARBON 10K 5% 1/4W
R504	1-249-429-11	s	CARBON 10K 5% 1/4W
R505	1-249-433-11	s	CARBON 22K 5% 1/4W
R506	1-249-412-11	s	CARBON 390 5% 1/4W
R507	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R508	1-249-429-11	s	CARBON 10K 5% 1/4W
R509	1-215-466-00	s	METAL 75K 1% 1/6W
R510	1-259-878-11	s	CARBON 1.5M 5% 1/4W
R511	1-249-429-11	s	CARBON 10K 5% 1/4W
R512	1-249-429-11	s	CARBON 10K 5% 1/4W
R513	1-249-429-11	s	CARBON 10K 5% 1/4W
R514	1-259-878-11	s	CARBON 1.5M 5% 1/4W
R515	1-249-429-11	s	CARBON 10K 5% 1/4W
R516	1-249-429-11	s	CARBON 10K 5% 1/4W
R517	1-249-429-11	s	CARBON 10K 5% 1/4W
R518	1-249-441-11	s	CARBON 100K 5% 1/4W
R519	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R520	1-249-437-11	s	CARBON 47K 5% 1/4W
R521	1-249-437-11	s	CARBON 47K 5% 1/4W
R522	1-249-429-11	s	CARBON 10K 5% 1/4W
R523	1-247-895-00	s	CARBON 470K 5% 1/4W
R524	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R525	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R526	1-249-429-11	s	CARBON 10K 5% 1/4W
R527	1-249-437-11	s	CARBON 47K 5% 1/4W
R528	1-249-429-11	s	CARBON 10K 5% 1/4W

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(SS-47A BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R529	1-249-437-11	s	CARBON 47K 5% 1/4W
R530	1-249-433-11	s	CARBON 22K 5% 1/4W
R531	1-249-437-11	s	CARBON 47K 5% 1/4W
R532	1-249-429-11	s	CARBON 10K 5% 1/4W
R533	1-249-429-11	s	CARBON 10K 5% 1/4W
R534	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R535	1-249-417-11	s	CARBON 1K 5% 1/4W
R536	1-249-429-11	s	CARBON 10K 5% 1/4W
R537	1-249-417-11	s	CARBON 1K 5% 1/4W
R538	1-249-433-11	s	CARBON 22K 5% 1/4W
R539	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R540	1-249-427-11	s	CARBON 6.8K 5% 1/4W
R541	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R542	1-249-427-11	s	CARBON 6.8K 5% 1/4W
R543	1-249-417-11	s	CARBON 1K 5% 1/4W
R544	1-249-405-11	s	CARBON 100 5% 1/4W
R545	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R546	1-249-438-11	s	CARBON 56K 5% 1/4W
R547	1-249-439-11	s	CARBON 68K 5% 1/4W
R548	1-249-417-11	s	CARBON 1K 5% 1/4W
R549	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R550	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R551	1-249-417-11	s	CARBON 1K 5% 1/4W
R552	1-249-441-11	s	CARBON 100K 5% 1/4W
R553	1-249-437-11	s	CARBON 47K 5% 1/4W
R554	1-249-427-11	s	CARBON 6.8K 5% 1/4W
R555	1-249-433-11	s	CARBON 22K 5% 1/4W
R556	1-249-417-11	s	CARBON 1K 5% 1/4W
R557	1-249-417-11	s	CARBON 1K 5% 1/4W
R558	1-249-413-11	s	CARBON 470 5% 1/4W
R559	1-215-404-00	s	METAL 200 1% 1/6W
R560	1-247-895-00	s	CARBON 470K 5% 1/4W
R561	1-249-417-11	s	CARBON 1K 5% 1/4W
R562	1-249-428-11	s	CARBON 8.2K 5% 1/4W
R563	1-249-421-11	s	CARBON 2.2K 5% 1/4W
R564	1-249-410-11	s	CARBON 270 5% 1/4W
R565	1-249-402-11	s	CARBON 56 5% 1/4W
R566	1-249-437-11	s	CARBON 47K 5% 1/4W
R567	1-249-427-11	s	CARBON 6.8K 5% 1/4W
R568	1-249-435-11	s	CARBON 33K 5% 1/4W
R569	1-249-429-11	s	CARBON 10K 5% 1/4W
R570	1-249-433-11	s	CARBON 22K 5% 1/4W
R571	1-249-441-11	s	CARBON 100K 5% 1/4W
R572	1-249-441-11	s	CARBON 100K 5% 1/4W
R573	1-249-433-11	s	CARBON 22K 5% 1/4W
R575	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R576	1-249-422-11	s	CARBON 2.7K 5% 1/4W
R577	1-249-423-11	s	CARBON 3.3K 5% 1/4W
R578	1-249-429-11	s	CARBON 10K 5% 1/4W
R601	1-249-441-11	s	CARBON 100K 5% 1/4W
R602	1-249-441-11	s	CARBON 100K 5% 1/4W
R603	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R604	1-249-413-11	s	CARBON 470 5% 1/4W
R605	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R606	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R607	1-249-425-11	s	CARBON 4.7K 5% 1/4W
R608	1-247-903-00	s	CARBON 1M 5% 1/4W
R609	1-249-429-11	s	CARBON 10K 5% 1/4W
R610	1-247-903-00	s	CARBON 1M 5% 1/4W
R611	1-249-429-11	s	CARBON 10K 5% 1/4W
R701	1-247-887-00	s	CARBON 220K 5% 1/4W
R702	1-247-887-00	s	CARBON 220K 5% 1/4W
R703	1-247-887-00	s	CARBON 220K 5% 1/4W
R901	1-249-417-11	s	CARBON 1K 5% 1/4W
R902	1-249-417-11	s	CARBON 1K 5% 1/4W
R903	1-249-417-11	s	CARBON 1K 5% 1/4W
R904	1-249-417-11	s	CARBON 1K 5% 1/4W
R905	1-249-417-11	s	CARBON 1K 5% 1/4W
R906	1-249-417-11	s	CARBON 1K 5% 1/4W
R907	1-249-417-11	s	CARBON 1K 5% 1/4W
R908	1-249-417-11	s	CARBON 1K 5% 1/4W
R909	1-249-417-11	s	CARBON 1K 5% 1/4W
RB101	1-235-196-00	s	RESISTOR BLOCK 100kx8
RB301	1-235-195-00	s	RESISTOR BLOCK 10KX8
RV101	1-238-550-11	s	RES, ADJ CARBON 100K
RV301	1-241-136-11	s	RES, ADJ METAL 10K
RV302	1-241-136-11	s	RES, ADJ METAL 10K
RV303	1-241-119-11	s	RES, ADJ METAL 1K
RV304	1-241-119-11	s	RES, ADJ METAL 1K
S101	1-570-623-11	s	SWITCH, DIP 8-CKT
X101	1-567-962-11	s	CRYSTAL 8MHz
X301	1-567-192-11	s	RESONATOR, CERAMIC 4.00MHz

TR-68A BOARD (1-637-238-11, 12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-637-238-12	o	PRINTED CIRCUIT BOARD, TR-68
CN670	1-564-004-11	o	CONNECTOR 5P, MALE
RV101	1-241-334-11	s	RES, VAR CARBON 100K
RV102	1-228-997-00	s	RES, ADJ METAL 100K

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

VO-27 BOARD (1-638-810-11)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-316-A	o	MOUNTED CIRCUIT BOARD, VO-27
1pc	3-168-157-01	o	BRACKET (R), VO
1pc	3-168-158-01	o	BRACKET (L), VO
2pcs	7-682-903-11	s	SCREW +PWH 3X6
C102	1-124-584-00	s	ELECT 100uF 20% 10V
C103	1-124-584-00	s	ELECT 100uF 20% 10V
C106	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C107	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C108	1-163-251-11	s	CERAMIC 100PF 5% 50V
C110	1-124-584-00	s	ELECT 100uF 20% 10V
C111	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C113	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C114	1-124-584-00	s	ELECT 100uF 20% 10V
C115	1-126-157-11	s	ELECT 10uF 20% 16V
C116	1-126-157-11	s	ELECT 10uF 20% 16V
C117	1-163-119-00	s	CERAMIC, CHIP 120PF 5% 50V
C118	1-126-301-11	s	ELECT 1uF 20% 50V
C120	1-163-263-11	s	CERAMIC 330PF 5% 50V
C122	1-163-127-00	s	CERAMIC, CHIP 270PF 5% 50V
C123	1-126-157-11	s	ELECT 10uF 20% 16V
C125	1-162-875-11	s	CERAMIC 68PF 5% 50V
C126	1-163-136-00	s	CERAMIC 620PF 1% 50V
C129	1-163-115-00	s	CERAMIC, CHIP 82PF 5% 50V
C130	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C131	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C132	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C133	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C134	1-126-157-11	s	ELECT 10uF 20% 16V
C135	1-124-589-11	s	ELECT 47uF 20% 16V
C138	1-163-104-00	s	CERAMIC, CHIP 30PF 5% 50V
C140	1-126-157-11	s	ELECT 10uF 20% 16V
C141	1-163-099-00	s	CERAMIC, CHIP 18PF 5% 50V
C143	1-124-589-11	s	ELECT 47uF 20% 16V
C145	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C147	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C148	1-124-589-11	s	ELECT 47uF 20% 16V
C150	1-124-589-11	s	ELECT 47uF 20% 16V
C153	1-163-119-00	s	CERAMIC, CHIP 120PF 5% 50V
C155	1-126-163-11	s	ELECT 4.7MF 20% 50V
C156	1-126-162-11	s	ELECT 3.3uF 20% 50V
C158	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C159	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C160	1-124-638-11	s	ELECT 22uF 20% 10V
C163	1-126-157-11	s	ELECT 10uF 20% 16V
C164	1-126-163-11	s	ELECT 4.7MF 20% 50V
C165	1-124-638-11	s	ELECT 22uF 20% 10V
C166	1-124-638-11	s	ELECT 22uF 20% 10V
C168	1-163-081-00	s	CERAMIC, CHIP 0.22uF 25V
C169	1-163-131-00	s	CERAMIC, CHIP 390PF 5% 50V
C170	1-163-263-11	s	CERAMIC 330PF 5% 50V
C173	1-163-124-00	s	CERAMIC, CHIP 200PF 5% 50V
C174	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C175	1-124-589-11	s	ELECT 47uF 20% 16V
C177	1-163-139-00	s	CERAMIC, CHIP 820PF 5% 50V
C178	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C179	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C180	1-124-589-11	s	ELECT 47uF 20% 16V
C183	1-163-103-00	s	CERAMIC, CHIP 27PF 5% 50V
C186	1-163-100-00	s	CERAMIC, CHIP 20PF 5% 50V

(VO-27 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C191	1-163-224-11	s	CERAMIC 7PF 0.25PF 50V
C194	1-124-589-11	s	ELECT 47uF 20% 16V
C195	1-126-301-11	s	ELECT 1uF 20% 50V
C197	1-124-584-00	s	ELECT 100uF 20% 10V
C198	1-124-584-00	s	ELECT 100uF 20% 10V
C199	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C203	1-124-257-00	s	ELECT 2.2uF 20% 50V
C206	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C208	1-124-589-11	s	ELECT 47uF 20% 16V
C209	1-163-227-11	s	CERAMIC 10PF 5% 50V
C210	1-126-157-11	s	ELECT 10uF 20% 16V
C213	1-163-227-11	s	CERAMIC 10PF 5% 50V
C214	1-163-112-00	s	CERAMIC 62PF 5% 50V
C216	1-163-120-00	s	CERAMIC 130PF 5% 50V
C217	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C218	1-163-235-11	s	CERAMIC 22PF 5% 50V
C221	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C222	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C223	1-162-215-31	s	CERAMIC 47PF 5% 50V
C301	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C302	1-163-106-00	s	CERAMIC 36PF 5% 50V
C303	1-163-122-00	s	CERAMIC 160PF 5% 50V
C304	1-163-124-00	s	CERAMIC, CHIP 200PF 5% 50V
C305	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C306	1-163-120-00	s	CERAMIC 130PF 5% 50V
C307	1-124-589-11	s	ELECT 47uF 20% 16V
C309	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C311	1-163-251-11	s	CERAMIC 100PF 5% 50V
C312	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C313	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C315	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C316	1-163-114-00	s	CERAMIC, CHIP 75PF 5% 50V
C317	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C318	1-126-163-11	s	ELECT 4.7MF 20% 50V
C321	1-126-301-11	s	ELECT 1uF 20% 50V
C323	1-124-465-00	s	ELECT 0.47uF 20% 50V
C324	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C327	1-163-251-11	s	CERAMIC 100PF 5% 50V
C328	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C329	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C330	1-163-263-11	s	CERAMIC 330PF 5% 50V
C331	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C332	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C338	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C339	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C340	1-126-163-11	s	ELECT 4.7MF 20% 50V
C341	1-162-568-11	s	CERAMIC, CHIP 0.33uF 25V
C342	1-163-833-00	s	CERAMIC, CHIP 0.068uF 25V
C345	1-163-119-00	s	CERAMIC, CHIP 120PF 5% 50V
C347	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C348	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C349	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C351	1-163-108-00	s	CERAMIC, CHIP 43PF 5% 50V
C352	1-164-232-11	s	CERAMIC 0.01uF 10% 50V
C353	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C354	1-163-110-00	s	CERAMIC, CHIP 51PF 5% 50V
C355	1-163-123-00	s	CERAMIC, CHIP 180PF 5% 50V
C402	1-124-589-11	s	ELECT 47uF 20% 16V
C404	1-124-589-11	s	ELECT 47uF 20% 16V

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(VO-27 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
CF101	1-527-849-00	s	FILTER, CERAMIC
CN101	1-569-383-11	o	SOCKET,CONNECTOR (PRINTED CIRCUIT B
CN202	1-506-476-11	s	CONNECTOR, 11P, MALE
CN301	1-569-391-11	o	PIN, CONNECTOR (PRINTED CIRCUIT BOA
CV301	1-141-260-00	s	CAP, TRIMMER 50PF
D101	8-719-400-18	s	DIODE MA152WK
D102	8-719-800-76	s	DIODE 1SS226
D103	8-719-119-11	s	DIODE RD3.6ES-L2
D301	8-719-400-18	s	DIODE MA152WK
DL301	1-415-602-11	s	DELAY LINE, GLASS
FL101	1-236-312-11	s	FILTER, BAND PASS
FL301	1-236-311-11	s	FILTER, BAND PASS
FL302	1-236-835-11	s	FILTER, BAND PASS
IC101	8-759-420-07	s	IC AN3231K
IC102	8-752-321-89	s	IC CXL5003P
IC103	8-759-822-05	s	IC LA7213
IC104	8-752-006-12	s	IC CX20061
IC105	8-759-927-56	s	IC BA7021
IC301	8-759-320-78	s	IC HA118016NT
IC401	8-759-948-44	s	IC S-80250AG
IC402	8-759-982-34	s	IC RC78M09FA
L101	1-410-482-31	s	INDUCTOR 100uH
L102	1-410-482-31	s	INDUCTOR 100uH
L103	1-408-422-00	s	INDUCTOR 120uH
L106	1-410-482-31	s	INDUCTOR 100uH
L107	1-410-482-31	s	INDUCTOR 100uH
L109	1-410-470-11	s	INDUCTOR 10uH
L110	1-408-423-00	s	INDUCTOR 150UH
L112	1-410-470-11	s	INDUCTOR 10uH
L113	1-410-482-31	s	INDUCTOR 100uH
L114	1-410-482-31	s	INDUCTOR 100uH
L115	1-410-471-11	s	INDUCTOR 12uH
L117	1-410-482-31	s	INDUCTOR 100uH
L118	1-410-482-31	s	INDUCTOR 100uH
L119	1-410-478-11	s	INDUCTOR 47uH
L120	1-408-418-00	s	INDUCTOR 56uH
L121	1-410-482-31	s	INDUCTOR 100uH
L122	1-410-482-31	s	INDUCTOR 100uH
L123	1-410-482-31	s	INDUCTOR 100uH
L124	1-410-482-31	s	INDUCTOR 100uH
L125	1-410-482-31	s	INDUCTOR 100uH
L302	1-408-424-00	s	INDUCTOR 180UH
L304	1-410-482-31	s	INDUCTOR 100uH
L306	1-410-482-31	s	INDUCTOR 100uH
L307	1-408-406-00	s	INDUCTOR 5.6uH
L309	1-412-447-11	s	INDUCTOR 3.9MMH
L311	1-410-470-11	s	INDUCTOR 10uH
L312	1-410-473-11	s	INDUCTOR 18uH
L313	1-410-476-11	s	INDUCTOR 33uH
L314	1-408-414-00	s	INDUCTOR 27uH
L315	1-410-482-31	s	INDUCTOR 100uH
L316	1-410-478-11	s	INDUCTOR 47uH
Q101	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q102	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q103	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q104	8-729-901-01	s	TRANSISTOR DTC144EK
Q105	8-729-901-01	s	TRANSISTOR DTC144EK
Q106	8-729-901-01	s	TRANSISTOR DTC144EK
Q107	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q108	8-729-216-22	s	TRANSISTOR 2SA1162
Q109	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q110	8-729-202-38	s	TRANSISTOR 2SC3326N
Q111	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q112	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q113	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q114	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q115	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q116	8-729-216-22	s	TRANSISTOR 2SA1162
Q117	8-729-216-22	s	TRANSISTOR 2SA1162
Q118	8-729-216-22	s	TRANSISTOR 2SA1162
Q120	8-729-901-04	s	TRANSISTOR DTA114EK
Q121	8-729-216-22	s	TRANSISTOR 2SA1162
Q122	8-729-216-22	s	TRANSISTOR 2SA1162
Q123	8-729-901-01	s	TRANSISTOR DTC144EK
Q124	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q125	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q126	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q127	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q128	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q129	8-729-202-38	s	TRANSISTOR 2SC3326N
Q130	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q131	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q132	8-729-216-22	s	TRANSISTOR 2SA1162
Q133	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q134	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q135	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q301	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q302	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q303	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q304	8-729-216-22	s	TRANSISTOR 2SA1162
Q305	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q306	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q307	8-729-202-38	s	TRANSISTOR 2SC3326N
Q309	8-729-901-01	s	TRANSISTOR DTC144EK
Q310	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q311	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q312	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q313	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q314	8-729-202-38	s	TRANSISTOR 2SC3326N
Q315	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q316	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q317	8-729-901-01	s	TRANSISTOR DTC144EK
Q401	8-729-901-01	s	TRANSISTOR DTC144EK
R116	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R124	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R125	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W
R127	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R131	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R132	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R133	1-216-666-11	s	METAL, CHIP 4.3K 0.5% 1/10W
R134	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R139	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R142	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(VO-27 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R160	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R163	1-216-654-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R164	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R168	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R169	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R172	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R174	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R175	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R178	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R179	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R188	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R202	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R204	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R212	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R213	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R214	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R215	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R216	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R219	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R223	1-216-648-11	s	METAL, CHIP 750 0.5% 1/10W
R224	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R225	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W
R226	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R227	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R228	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R304	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R306	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R307	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R310	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R311	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R314	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R318	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R319	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R320	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R322	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R323	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R325	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R326	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R335	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R336	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R337	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R341	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R346	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R347	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R355	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
RV101	1-238-012-11	s	RES, ADJ, CARBON 1K
RV102	1-238-017-11	s	RES, ADJ, CARBON 22K
RV103	1-238-016-11	s	RES, ADJ, CARBON 10K
RV104	1-238-012-11	s	RES, ADJ, CARBON 1K
RV105	1-238-544-11	s	RES, ADJ, CARBON 1K
RV106	1-238-544-11	s	RES, ADJ, CARBON 1K
RV107	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV108	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV109	1-238-015-11	s	RES, ADJ, CARBON 4.7K
RV110	1-238-017-11	s	RES, ADJ, CARBON 22K
RV111	1-238-017-11	s	RES, ADJ, CARBON 22K
RV301	1-238-012-11	s	RES, ADJ, CARBON 1K
RV302	1-238-544-11	s	RES, ADJ, CARBON 1K
RV303	1-238-013-11	s	RES, ADJ, CARBON 2.2K

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(VO-27 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
S101	1-553-510-00	s	SWITCH, SLIDE
X301	1-567-504-11	s	OSCILLATOR, CRYSTAL

VO-27 BOARD (1-638-810-12)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	A-6727-316-A	o	MOUNTED CIRCUIT BOARD, VO-27
1pc	3-168-157-02	o	BRACKET (R), VO
1pc	3-168-158-01	o	BRACKET (L), VO
2pcs	4-886-821-11	s	SCREW, S TIGHT, +PTTWH 3X6
C102	1-124-584-00	s	ELECT 100uF 20% 10V
C103	1-124-584-00	s	ELECT 100uF 20% 10V
C106	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C107	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C108	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C110	1-124-584-00	s	ELECT 100uF 20% 10V
C111	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C112	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C113	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C114	1-124-584-00	s	ELECT 100uF 20% 10V
C115	1-126-157-11	s	ELECT 10uF 20% 16V
C116	1-126-157-11	s	ELECT 10uF 20% 16V
C117	1-163-253-11	s	CERAMIC, CHIP 120PF 5% 50V
C118	1-126-301-11	s	ELECT 1uF 20% 50V
C120	1-163-263-11	s	CERAMIC, CHIP 330PF 5% 50V
C123	1-126-157-11	s	ELECT 10uF 20% 16V
C125	1-162-875-11	s	CERAMIC 68PF 5% 50V
C126	1-163-136-00	s	CERAMIC, CHIP 620PF 5% 50V
C128	1-163-239-11	s	CERAMIC, CHIP 33PF 5% 50V
C129	1-163-115-00	s	CERAMIC, CHIP 82PF 5% 50V
C130	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C131	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C132	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C133	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C134	1-126-157-11	s	ELECT 10uF 20% 16V
C135	1-124-589-11	s	ELECT 47uF 20% 16V
C138	1-163-104-00	s	CERAMIC, CHIP 30PF 5% 50V
C140	1-126-157-11	s	ELECT 10uF 20% 16V
C156	1-126-162-11	s	ELECT 3.3uF 20% 50V
C158	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C159	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C160	1-124-638-11	s	ELECT 22uF 20% 10V
C163	1-126-157-11	s	ELECT 10uF 20% 16V
C164	1-126-163-11	s	ELECT 4.7uF 20% 50V
C165	1-124-638-11	s	ELECT 22uF 20% 10V
C166	1-124-638-11	s	ELECT 22uF 20% 10V
C168	1-163-081-00	s	CERAMIC, CHIP 0.22uF 25V
C169	1-163-131-00	s	CERAMIC, CHIP 390PF 5% 50V
C170	1-163-263-11	s	CERAMIC, CHIP 330PF 5% 50V
C173	1-163-124-00	s	CERAMIC, CHIP 200PF 5% 50V
C174	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C175	1-124-589-11	s	ELECT 47uF 20% 16V
C177	1-163-139-00	s	CERAMIC, CHIP 820PF 5% 50V
C178	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C179	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C180	1-124-589-11	s	ELECT 47uF 20% 16V
C183	1-163-237-11	s	CERAMIC, CHIP 27PF 5% 50V
C186	1-163-234-11	s	CERAMIC, CHIP 20PF 5% 50V
C191	1-163-224-11	s	CERAMIC 7PF 0.25PF 50V
C194	1-124-589-11	s	ELECT 47uF 20% 16V
C195	1-126-301-11	s	ELECT 1uF 20% 50V
C197	1-124-584-00	s	ELECT 100uF 20% 10V
C198	1-124-584-00	s	ELECT 100uF 20% 10V
C199	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C203	1-124-257-00	s	ELECT 2.2uF 20% 50V

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(VO-27 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
C206	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C208	1-124-589-11	s	ELECT 47uF 20% 16V
C209	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C210	1-126-157-11	s	ELECT 10uF 20% 16V
C213	1-163-227-11	s	CERAMIC, CHIP 10PF 5% 50V
C214	1-163-112-00	s	CERAMIC, CHIP 62PF 5% 50V
C215	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C216	1-163-120-00	s	CERAMIC 130PF 5% 50V
C217	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C218	1-163-235-11	s	CERAMIC, CHIP 22PF 5% 50V
C219	1-163-275-11	s	CERAMIC, CHIP 0.001uF 5% 50V
C221	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C222	1-130-487-00	s	MYLAR 0.022uF 5% 50V
C223	1-162-215-31	s	CERAMIC 47PF 5% 50V
C301	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C302	1-163-106-00	s	CERAMIC 36PF 5% 50V
C303	1-163-122-00	s	CERAMIC 160PF 5% 50V
C304	1-163-124-00	s	CERAMIC, CHIP 200PF 5% 50V
C305	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C306	1-163-120-00	s	CERAMIC 130PF 5% 50V
C307	1-124-589-11	s	ELECT 47uF 20% 16V
C309	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C311	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C312	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C313	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C315	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C316	1-163-114-00	s	CERAMIC, CHIP 75PF 5% 50V
C317	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C318	1-126-163-11	s	ELECT 4.7uF 20% 50V
C321	1-126-301-11	s	ELECT 1uF 20% 50V
C323	1-124-465-00	s	ELECT 0.47uF 20% 50V
C324	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C327	1-163-251-11	s	CERAMIC, CHIP 100PF 5% 50V
C328	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C329	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C330	1-163-263-11	s	CERAMIC, CHIP 330PF 5% 50V
C331	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C332	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C334	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C338	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C339	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C340	1-126-163-11	s	ELECT 4.7uF 20% 50V
C341	1-162-568-11	s	CERAMIC, CHIP 0.33uF 25V
C342	1-163-833-00	s	CERAMIC, CHIP 0.068uF 25V
C345	1-163-253-11	s	CERAMIC, CHIP 120PF 5% 50V
C347	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C348	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C349	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C350	1-163-243-11	s	CERAMIC, CHIP 47PF 5% 50V
C351	1-163-108-00	s	CERAMIC, CHIP 43PF 5% 50V
C352	1-164-232-11	s	CERAMIC 0.01uF 10% 100V
C353	1-163-037-11	s	CERAMIC, CHIP 0.022uF 10% 25V
C354	1-163-110-00	s	CERAMIC, CHIP 51PF 5% 50V
C355	1-163-257-11	s	CERAMIC, CHIP 180PF 5% 50V
C402	1-124-589-11	s	ELECT 47uF 20% 16V
C404	1-124-589-11	s	ELECT 47uF 20% 16V
CN202	1-506-476-11	s	CONNECTOR 11P, MALE
CN212	1-564-002-41	s	CONNECTOR 3P, MALE

(VO-27 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
CN301	1-569-391-11	o	CONNECTOR 6P, MALE
CV301	1-141-260-00	s	CAP, TRIMMER 50PF
D101	8-719-400-18	s	DIODE MA152WK
D102	8-719-800-76	s	DIODE 1SS226
D103	8-719-119-98	s	DIODE RD3.6ES-L2
D301	8-719-400-18	s	DIODE MA152WK
D401	8-719-911-19	s	DIODE 1SS119
DL301	1-415-602-11	s	DELAY LINE 70nS
FL101	1-236-312-11	s	FILTER, BAND-PASS 0.1MHz
FL301	1-236-311-11	s	FILTER, BAND-PASS 5.06MHz
FL302	1-236-835-11	s	FILTER, BANDPASS
IC101	8-759-420-07	s	IC AN3231K
IC103	8-759-822-05	s	IC LA7213
IC104	8-752-006-12	s	IC CX20061
IC105	8-759-927-56	s	IC BA7021
IC301	8-759-320-78	s	IC HA118016NT
IC401	8-759-948-44	s	IC S-80250AG
IC402	8-759-701-59	s	IC NJM78M09FA
L101	1-410-482-31	s	INDUCTOR 100uH
L102	1-410-482-31	s	INDUCTOR 100uH
L103	1-408-422-00	s	INDUCTOR 120uH
L106	1-410-482-31	s	INDUCTOR 100uH
L107	1-410-482-31	s	INDUCTOR 100uH
L109	1-410-470-11	s	INDUCTOR 10uH
L110	1-408-423-00	s	INDUCTOR 150uH
L117	1-410-482-31	s	INDUCTOR 100uH
L118	1-410-482-31	s	INDUCTOR 100uH
L119	1-410-478-11	s	INDUCTOR 47uH
L120	1-408-418-00	s	INDUCTOR 56uH
L121	1-410-482-31	s	INDUCTOR 100uH
L122	1-410-482-31	s	INDUCTOR 100uH
L123	1-410-482-31	s	INDUCTOR 100uH
L124	1-410-482-31	s	INDUCTOR 100uH
L125	1-410-482-31	s	INDUCTOR 100uH
L302	1-408-424-00	s	INDUCTOR 180uH
L304	1-410-482-31	s	INDUCTOR 100uH
L306	1-410-482-31	s	INDUCTOR 100uH
L307	1-408-406-00	s	INDUCTOR 5.6uH
L309	1-412-447-11	s	INDUCTOR 3.9mH
L311	1-410-470-11	s	INDUCTOR 10uH
L312	1-410-473-11	s	INDUCTOR 18uH
L313	1-410-476-11	s	INDUCTOR 33uH
L314	1-408-414-00	s	INDUCTOR 27uH
L315	1-410-482-31	s	INDUCTOR 100uH
L316	1-410-478-11	s	INDUCTOR 47uH
Q101	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q102	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q103	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q104	8-729-901-01	s	TRANSISTOR DTC144EK
Q105	8-729-901-01	s	TRANSISTOR DTC144EK
Q106	8-729-901-01	s	TRANSISTOR DTC144EK
Q107	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q108	8-729-216-22	s	TRANSISTOR 2SA1162
Q109	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q110	8-729-202-38	s	TRANSISTOR 2SC3326N
Q111	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q112	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q113	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q120	8-729-901-04	s	TRANSISTOR DTA114EK
Q121	8-729-216-22	s	TRANSISTOR 2SA1162
Q122	8-729-216-22	s	TRANSISTOR 2SA1162
Q123	8-729-901-01	s	TRANSISTOR DTC144EK
Q124	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q125	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q126	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q127	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q128	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q129	8-729-202-38	s	TRANSISTOR 2SC3326N
Q130	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q131	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q132	8-729-216-22	s	TRANSISTOR 2SA1162
Q133	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q134	8-729-119-79	s	TRANSISTOR 2SC2785-FEK
Q135	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q136	8-729-901-06	s	TRANSISTOR DTA144EK
Q137	8-729-901-06	s	TRANSISTOR DTA144EK
Q138	8-729-901-01	s	TRANSISTOR DTC144EK
Q301	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q302	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q303	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q304	8-729-216-22	s	TRANSISTOR 2SA1162
Q305	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q306	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q307	8-729-202-38	s	TRANSISTOR 2SC3326N
Q309	8-729-901-01	s	TRANSISTOR DTC144EK
Q310	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q311	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q312	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q313	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q314	8-729-202-38	s	TRANSISTOR 2SC3326N
Q315	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q316	8-729-230-49	s	TRANSISTOR 2SC2712-YG
Q317	8-729-901-01	s	TRANSISTOR DTC144EK
Q401	8-729-901-01	s	TRANSISTOR DTC144EK
R116	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R124	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R125	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W
R127	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R128	1-216-091-00	s	METAL, CHIP 56K 5% 1/10W
R131	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R132	1-216-681-11	s	METAL, CHIP 18K 0.5% 1/10W
R133	1-216-666-11	s	METAL, CHIP 4.3K 0.5% 1/10W
R134	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R139	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R142	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R159	1-216-129-00	s	METAL, CHIP 2.2M 5% 1/10W
R160	1-216-627-11	s	METAL, CHIP 100 0.5% 1/10W
R163	1-216-654-11	s	METAL, CHIP 1.3K 0.5% 1/10W
R164	1-216-638-11	s	METAL, CHIP 300 0.5% 1/10W
R168	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R169	1-216-675-11	s	METAL, CHIP 10K 0.5% 1/10W
R172	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R174	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R175	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

(VO-27 BOARD)

Ref. No. or Q'ty	Part No.	SP	Description
R178	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R179	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R188	1-216-646-11	s	METAL, CHIP 620 0.5% 1/10W
R202	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R204	1-216-653-11	s	METAL, CHIP 1.2K 0.5% 1/10W
R212	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R213	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R214	1-216-624-11	s	METAL, CHIP 75 0.5% 1/10W
R215	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R216	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R219	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R223	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R224	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R225	1-216-650-11	s	METAL, CHIP 910 0.5% 1/10W
R226	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R227	1-216-644-11	s	METAL, CHIP 510 0.5% 1/10W
R228	1-216-639-11	s	METAL, CHIP 330 0.5% 1/10W
R231	1-216-623-11	s	METAL, CHIP 68 0.5% 1/10W
R304	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R306	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R307	1-216-655-11	s	METAL, CHIP 1.5K 0.5% 1/10W
R310	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R311	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R314	1-216-641-11	s	METAL, CHIP 390 0.5% 1/10W
R318	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R319	1-216-665-11	s	METAL, CHIP 3.9K 0.5% 1/10W
R320	1-216-661-11	s	METAL, CHIP 2.7K 0.5% 1/10W
R322	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R323	1-216-657-11	s	METAL, CHIP 1.8K 0.5% 1/10W
R325	1-216-637-11	s	METAL, CHIP 270 0.5% 1/10W
R326	1-216-663-11	s	METAL, CHIP 3.3K 0.5% 1/10W
R335	1-216-635-11	s	METAL, CHIP 220 0.5% 1/10W
R336	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R337	1-216-645-11	s	METAL, CHIP 560 0.5% 1/10W
R341	1-216-651-11	s	METAL, CHIP 1K 0.5% 1/10W
R346	1-216-647-11	s	METAL, CHIP 680 0.5% 1/10W
R347	1-216-643-11	s	METAL, CHIP 470 0.5% 1/10W
R355	1-216-649-11	s	METAL, CHIP 820 0.5% 1/10W
R403	1-249-405-11	s	CARBON 100 5% 1/4W
RV101	1-238-012-11	s	RES, ADJ CARBON 1K
RV102	1-241-631-11	s	RES, ADJ CARBON 22K
RV103	1-241-630-11	s	RES, ADJ CARBON 10K
RV104	1-238-012-11	s	RES, ADJ CARBON 1K
RV105	1-241-120-11	s	RES, ADJ METAL 2.2K
RV106	1-241-120-11	s	RES, ADJ METAL 2.2K
RV107	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV108	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV109	1-238-015-11	s	RES, ADJ CARBON 4.7K
RV110	1-241-631-11	s	RES, ADJ CARBON 22K
RV111	1-241-631-11	s	RES, ADJ CARBON 22K
RV301	1-238-012-11	s	RES, ADJ CARBON 1K
RV302	1-241-119-11	s	RES, ADJ METAL 1K
RV303	1-241-628-11	s	RES, ADJ CARBON 2.2K
S101	1-553-510-00	s	SWITCH, SLIDE
X301	1-567-504-11	s	CRYSTAL 4.433619MHz

VR-125 BOARD (1-639-704-11)

Ref. No. or Q'ty	Part No.	SP	Description
1pc	1-639-704-11	o	PRINTED CIRCUIT BOARD, VR-125
2pcs	7-685-134-19	s	SCREW +P 2.6X8 TYPE2 SLIT
CN154	1-506-478-11	s	CONNECTOR 13P, MALE
CN155	1-564-004-11	o	CONNECTOR 5P, MALE
D1	8-719-802-11	s	LED TLUG154, GRN
D2	8-719-802-11	s	LED TLUG154, GRN
R1	1-216-238-00	s	METAL, CHIP 47K 5% 1/8W
R2	1-216-198-00	s	METAL, CHIP 1K 5% 1/8W
R3	1-216-198-00	s	METAL, CHIP 1K 5% 1/8W
R4	1-216-198-00	s	METAL, CHIP 1K 5% 1/8W
R6	1-216-296-00	s	METAL, CHIP 0 5% 1/8W
RV1	1-241-801-11	s	RES, VAR CARBON 20K
RV2	1-241-801-11	s	RES, VAR CARBON 20K
RV3	1-241-801-11	s	RES, VAR CARBON 20K
RV4	1-241-801-11	s	RES, VAR CARBON 20K
TP1	1-535-943-11	o	TERMINAL, TP

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FRAME

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-413-633-11	s	REGULATOR, SWITCHING
8pcs	1-506-481-11	s	CONNECTOR, 2P MALE
7pcs	1-506-482-11	s	CONNECTOR, 3P MALE
2pcs	1-506-483-21	s	CONNECTOR, 4P MALE
2pcs	⚠1-532-203-00	s	FUSE, TIME-LAG 2A 250V "SS-47A/AC-103A BOARD"
3pcs	1-535-316-11	o	TERMINAL, GROUND (M4)
3pcs	⚠1-562-210-11	s	CONTACT, FEMALE AWG18-22
1pc	1-637-249-11	o	PRINTED CIRCUIT BOARD, SE-159
1pc	1-637-250-11	o	PRINTED CIRCUIT BOARD, LE-86
1pc	1-946-855-11	o	HARNESS(CTRL(S))
1pc	8-848-588-11	s	DRUM ASSY DZH-30B-R
1pc	8-848-569-02	s	UPPER DRUM ASSY DZR-30-R
CN153B	1-569-196-11	o	HOUSING, 3P "KY-194A BOARD"
CN512	1-561-781-11	s	CONNECTOR, BNC, FEMALE "VIDEO IN"
CN513	1-561-781-11	s	CONNECTOR, BNC, FEMALE "VIDEO OUT"
CN514	1-561-781-11	s	CONNECTOR, BNC, FEMALE "VIDEO OUT"
CN652	1-569-195-11	o	HOUSING, 2P "HN-160 BOARD"
CN659	1-569-195-11	o	HOUSING, 2P "HN-160 BOARD"
CN901	⚠1-562-211-11	o	HOUSING, 3P "REGULATOR, SWITCHING"
CN903	⚠1-562-211-11	o	HOUSING, 3P "AC-103A BOARD"
CN904	⚠1-562-285-11	o	HOUSING, 4P "AC-103A BOARD"
CN905	⚠1-580-375-11	o	INLET 3P "AC IN"
D1	8-719-821-22	s	DIODE TL0221 "LE-86 BOARD"
H1002	X-3165-588-1	o	HEAD ASSY, ACE
H1003	1-543-695-11	s	HEAD, FE
J1001	1-507-251-XX	s	JACK "REMOTE"
M1002	8-835-350-02	s	MOTOR, DC U-26A "CAPSTAN"
M1003	8-835-432-01	s	MOTOR, DC SRV-0201A "T-REEL"
M1004	8-835-432-01	s	MOTOR, DC SRV-0201A "S-REEL"
M1005	X-3165-593-1	o	MOTOR ASSY, CAM "LOADING"
M1006	X-3727-784-1	s	MOTOR ASSY "CASSETTE COMPARTMENT"
PC1	1-806-232-21	s	DETECTOR MB-1102/S.N
PM1001	1-454-531-11	s	SOLENOID "BRAKE"
S1001	1-571-099-11	s	SWITCH "CASSETTE DOWN"
S1002	1-571-099-11	s	SWITCH "MISS REC"
S1003	⚠1-554-920-11	s	SWITCH, PUSH (AC POWER)(1 KEY)

Parts that are not listed in the Reference Number Order List are shown in the General Purpose Electrical Parts List.

13-4. PACKING MATERIAL AND ACCESSORIES

Ref. No. or Q'ty	Part No.	SP	Description
1pc	⚠1-590-910-11	s	CORD SET, POWER
1pc	3-168-650-01	o	CUSHION (REAR)
1pc	3-168-651-01	o	CUSHION (FRONT)
1pc	3-168-973-01	o	SPACER
1pc	3-169-287-01	o	INDIVIDUAL CARTON
1pc	⚠3-752-966-11	s	MANUAL, INSTRUCTION

13-5. OPTIONAL FIXTURES

Part No.	SP	Description
H-7099-035-H	o	TORQUE GAUGE ADAPTER
H-7099-039-H	o	TORQUE GAUGE
H-7099-052-H	o	ALIGNMENT TAPE, JVC-MH-2 (PAL)
J-6080-811-A	o	GUIDE HEIGHT ADJ. DRIVER
or		
J-6082-044-A	o	GUIDE HEIGHT ADJ. DRIVER
J-6080-840-A	o	SMALL MIRROR
J-6380-040-A	o	RG REFERENCE PIN (1)
J-6090-014-A	o	MOLYKOTE GREASE, EM-30LG
or		
4-918-645-01	o	MOLYKOTE GREASE, EM-30L
J-6380-050-A	o	RG REFERENCE PIN (2)
J-6380-080-A	o	REFERENCE PLATE
J-6380-090-A	o	REEL TABLE HEIGHT ADJ. TOOL
J-6380-550-A	o	MASTER BLOCK
J-6380-700-A	o	MASTER BLOCK
J-6380-710-A	o	X VALUE ADJUSTMENT TOOL
Y-2031-001-0	o	CLEANING FLUID
2-034-697-00	o	CLEANING CLOTH
7-700-736-05	o	L-SHAPED HEXAGONAL WRENCH(1.5mm)
7-700-736-06	o	L-SHAPED HEXAGONAL WRENCH(0.89mm)
7-700-751-02	o	BOX DRIVER
8-192-602-46	o	ALIGNMENT TAPE, KRV-4821PS(PAL)
or		
8-192-602-48	o	ALIGNMENT TAPE, KRV-4821PSA
8-192-603-16	o	ALIGNMENT TAPE, KRV-31PS (PAL)
8-192-603-56	o	ALIGNMENT TAPE, KRV-35PF (PAL)
8-719-603-96	o	ALIGNMENT TAPE, KRV-39PF (PAL)
9-911-053-00	o	THICKNESS GAUGE
COMMERCIALLY SOLD	o	TENTELOMETER, T2-H7-UMC
COMMERCIALLY SOLD	o	HEAD DEGAUSSER

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